PUBLIC HEALTH REPORTS

VOL. 46 MAY 15, 1931 NO. 20

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES[1]

March 29–April 25, 1931

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the PUBLIC HEALTH REPORTS under the section entitled "Prevalence of Disease."

Influenza.—The increased prevalence of influenza, which first became suddenly perceptible in January in New York City and other North Atlantic sections, had largely declined on the east coast and the Great Lakes section when the outbreak appeared in the Southern Mississippi Basin and in the West, and recovery in those sections has been correspondingly slow. Thus, whereas on the North Atlantic coast the current period showed only about 63 per cent as many cases (261) as occurred during the same period last year, the incidence in the Mountain and Pacific groups (1,387 cases) was 4.8 times that of last year.

The current incidence for the reporting States as a whole (12,011 cases) exceeded last year's figure for the period by 81 per cent.

Scarlet fever.—For the reporting States combined the incidence of scarlet fever (22,210 cases) for the current period is about 13 per cent higher than that of last year. In general the excess seems greater along the Atlantic coast than elsewhere. The North Atlantic group show an excess of 29 per cent and the South Atlantic 17 per cent over last year.

Smallpox.—The total reported incidence of smallpox (4,068 cases) was 64 per cent of last year's figure and was slightly lower than that of 1929. The South Central group, however, showed a 30 per cent excess over last year; the eight States comprising this group reported 1,267 cases. By way of contrast, the nine States in the South Atlantic group reported only 56 cases.

Meningococcus meningitis.—The recorded incidence of meningococcus meningitis, 612 cases, was 55 per cent of that of last year during

[1] From the Office of Statistical Investigations, U. S. Public Health Service. The number of States included for the various diseases are as follows: Typhoid fever, 47; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 45; diphtheria, 47; scarlet fever, 47; influenza, 30 States and New York City. The District of Columbia is counted as a State in these reports.

the corresponding period. All regions were low in relation to last year, except the South Atlantic, where there were 64 cases as compared with 62 last year. In Maryland 14 cases were reported, as compared with 4 during the preceding 4-week period. In Illinois also there was an increase from 50 cases last period to 92 cases during the current period.

Diphtheria.—The steady decline in the reported incidence of diphtheria continues. For the reporting States as a whole 3,478 cases were reported, or about 76 per cent of last year's number for the corresponding period. Most sections show approximately this rate of decline, and none equaled last year's incidence.

Typhoid fever.—The recent incidence of typhoid fever is somewhat below that of recent years, viz, 513 reported cases during the current period, as against 663 for the period last year and 801 in 1929. All regions are low in relation to last year except the Mountain and Pacific.

Poliomyelitis.—Recovery from the epidemic increase of last autumn in the incidence of poliomyelitis continues in the slow and somewhat irregular fashion characteristic of this disease. The reported incidence for all reporting States (83 cases) was about 30 per cent in excess of reports for this season during each of the preceding two years. The situation appears to be the most favorable in the South.

Measles.—This disease appears to be somewhat epidemic along the Atlantic coast and in the Great Lakes region, particularly in the South Atlantic section, where the reported incidence is about four times that of last year.

Mortality, all causes.—The mortality from all causes in large cities, as reported by the Bureau of the Census, was exceptionally low, viz, 12.9 per thousand population, annual basis. The average of the last five years was 14.3.

PUBLIC HEALTH PROGRESS IN KNOXVILLE, TENN.

By Joseph W. Mountin, *Surgeon, United States Public Health Service*

CONTENTS

Introduction

SCOPE AND PURPOSE OF STUDY

The practice of public-health administration is becoming more exact. Methods have been developed which, when applied properly, give returns that can be measured in relation to the local problem and in comparison with accomplishments in other communities of similar circumstances.

In the development and execution of a public-health program there are three successive steps: (1) Analysis of problem, (2) projection of a plan, and (3) periodic review or check of progress. The periodic check of progress should take into account changes in local conditions and advances in practice of public health administration, as well as the extent to which the local health department has measured up to its responsibilities.

The city of Knoxville has followed the practice outlined above. In 1923 a survey was made by Surgeon Carroll Fox of the United States Public Health Service. At that time he projected a plan which to a great extent forms the framework of the present health organization. A formal check of progress was made in 1924 by Dr. W. S. Rankin and again in 1926 by Dr. C. St. Clair Drake, both of the American Public Health Association. Each time certain changes in the program were suggested. An interim check was made by the city health officer.

The study herein reported was made in response to a request initiated by the city manager and the city health officer, and approved by the several local agencies participating in public health and related activities. The purposes of this study were (1) to check the progress made since the plan was originally projected and (2) to assist in adapting the future program to contemplated changes in personnel and plan of organization.

In conducting the study a special effort was made to determine the quantity and quality of the work being performed, and the efficiency and adequacy of the several elements of the organization. Particular attention was given to those agencies supported in whole or in part by public funds, and whose work for the most part is devoted either to the protection of the public health or the care of beneficiaries of the treatment facilities supplied by the city. Other agencies participating in or bearing a relationship to these functions were reviewed in less detail and mainly for the purpose of determining the extent to which the city could rely upon them for the performance of essential services.

COLLECTION AND PRESENTATION OF DATA

The material submitted in this report and the conclusions drawn are based upon the records of the agencies involved. In a few instances it was necessary to resort to estimates, but these estimates are based upon some recorded information. The calendar year 1929 was used for statistics of births, deaths, and communicable diseases. The reports of activities cover the nearest completed fiscal year of the organization under consideration. The fiscal year for the city is October 1 to September 30; for the schools, July 1 to June 30; and for the nonofficial agencies it is quite variable, although the calendar year is generally followed.

The report has been prepared in two main sections: (1) Prevention of Illness and Promotion of Health; and (2) Care of the Sick. Very brief consideration is given to selected welfare activities. The "Summary of Findings and Major Recommendations" concludes the report. The section on "Prevention of Illness and Promotion of Health" deals with such activities as have for their purpose the institution and application of measures which tend to prevent illness, or otherwise maintain the individual at the maximum level of efficiency and well-being. The section on "Care of the Sick" deals with those public measures and institutions which have been established for the treatment of the sick in homes, in hospitals, and in outpatient departments of hospitals. It is not possible to estimate the services rendered by physicians and dentists in their private capacity; and only such reference is made to private hospitals as will complete the picture of community service. No attempt was made to cover the field of general welfare, but rather the subject is considered in a broad way, and particularly in its relationship to the various phases of prevention and treatment of illness. In all instances, activities having a bearing on health are interpreted in terms of their suitability to the needs of the community, and recommendations are made with the same thought in mind.

GENERAL DESCRIPTION OF KNOXVILLE

The city of Knoxville is located in the center of the Great Valley of East Tennessee, on the Tennessee River about four miles below the confluence of the Holston and the French Broad Rivers, which form the Tennessee River. The first settlement on the present site of Knoxville was established in 1786 and was known as White's Fort. The city proper, however, was founded in 1791 and was incorporated by the State legislature of Tennessee in 1815. Knoxville was the capital of the "Territory of the United States South of the Ohio River" until 1796, when the State of Tennessee was organized; then it became the capital of Tennessee and remained so until 1811. From time to time changes in the city boundaries were made and adjacent towns were included. The last great change in boundaries, however, was made in 1917, when the area was increased from 3.97 to 26.24 square miles, thus including practically all the built-up surrounding sections and much unimproved land. At the present time approximately 50 per cent of the area of the city is classed as unimproved land.

Population.—The population of Knoxville, according to the census of April 1, 1930, was 105,795. The data on composition and character of the population compiled in the 1930 census are not available. The racial distribution of the population, according to the 1920 census, was as follows: Native white, 84.5 per cent; colored, 14.5 per cent; foreign born, 1.0 per cent.

Age distribution of population

[1920 United States Census]

	Knoxville	United States urban population		Knoxville	United States urban population
	Per cent	*Per cent*		*Per cent*	*Per cent*
Under 5	10.0	9.7	15 to 19	9.9	50.9
5 to 9	10.1	17.9	20 to 44	42.0	
10 to 14	9.6		45 and over	18.3	21.3

The growth of population since 1820

1820	2,000	1910	36,346
1850	2,076	1920	77,818
1880	9,693	1930	105,795

Resources.—There are approximately 350 manufacturing plants whose products in 1928 were valued at $91,806,000.00, and which give employment to 18,000 people. There are 135 wholesale and jobbing houses doing an annual business of $100,000,000.00. The principal products of the industries are cotton cloth and garments, marble, wood products, machinery, flour and feed. The area surrounding Knoxville contains many fertile farms, a diversity of mineral deposits, forests, and abundant water power resources. Smoky Mountain National Park is but a short distance from Knoxville. The University of Tennessee, with all its departments except those of medicine, dentistry, and pharmacy, is located in Knoxville. The enrollment during the regular scholastic year averages around 2,500 students.

Plan of government.—The city was incorporated in 1815. It was governed by a mayor and board of aldermen from then until 1911, when the commission form of government was established. In 1923 the present council-manager form of government was instituted. There are five administrative departments, each under the charge of a director appointed by and responsible to the city manager—department of law, department of finance, department of safety, department of public service, department of welfare. Within each department there are a number of bureaus or services, each in charge of one person who is accountable to the department director and through him to the city manager. The power of appointment is vested in the city manager, and all employees serve for an indefinite period at the pleasure of the city manager. In practice, however, matters of appointment are delegated very largely to the department directors and the chiefs of the bureaus or services concerned.

Finances.—The city operates under a budget system. Preliminary estimates are prepared by division directors in conference with the chiefs of the bureaus. These estimates are then passed to the city manager for review before being submitted to the city council.

The assessed valuation

Realty	$123, 530, 030
Personalty	18, 070, 545
Utilities	12, 231, 015

Property is said to be assessed in the neighborhood of 80 per cent of its true value. The city tax rate is $2.10 on the $100 valuation.

Operating expenditures, 1929 [1]

	Total	Per capita
General government	$158, 906	$1. 53
Police department	271, 206	2. 61
Fire department	265, 199	2. 55
All other protection of persons and property	19, 604	. 18
Conservation of health [2]	103, 430	. 99
Sanitation or protection of cleanliness	774, 206	7. 46
Highways	319, 620	3. 08
Charities, hospitals	411, 616	3. 96
Schools	1, 174, 736	11. 32
Libraries	42, 351	. 40
Recreation	42, 432	. 40
Miscellaneous	57, 809	. 55
Total	3, 641, 175	35. 03

[1] The classification is that used by the city auditor. Expenditures for permanent improvements, operation of public-service enterprises, and interest on the public debt are not included in the operating expenses as given in the above table.

[2] The item "Conservation of health" included $40,000 appropriated by the city for the support of the Beverly Hills Sanatorium.

Part I. Prevention of Illness and Promotion of Health

DEFINITION OF SERVICE

In order to take full advantage of the measures which will prevent illness and promote health, machinery must be established for giving practical application to the rapidly growing knowledge in this field. In part the attainment of health is a responsibility of the individual. Private physicians and dentists play a great rôle; in fact, they constitute the principal element in the service. A large part of the program, however, devolves upon public or governmental agencies. The enforcement of laws and regulations pertaining to health and sanitation fall within the police powers of a municipality. Such a limited program, however, is not sufficient, since a large percentage of the population can not, or at least at this stage of development, will not, take full advantage of other preventive measures unless facilities are made quite readily available. It therefore becomes necessary for a municipality to include in the general program of community betterment, facilities whereby persons, especially those of limited means or of totally inadequate resources, may receive the full benefit of preventive measures. The following activities which are directed towards preservation of a normal condition of body and mind are commonly classed as health services and are embraced in the program of a modern health department.

Health education.—The essential facts about health and disease are imparted by means of literature, motion pictures, exhibits, classroom instruction, and, more particularly, through public-health clinics and conferences.

Vital statistics.—Births and deaths are recorded in order that there may be some permanent record of the persons born or dying in the community. Death certificates are studied for the purpose of determining the various causative factors and the disease problems of the community.

Environmental sanitation.—Provision is made for determining and correcting the various physical conditions in man's environment which may be prejudicial to his health, such as the breeding of insects which transmit disease, improper housing, improper sewage disposal, and the like.

Control of milk and food supplies.—These important articles are protected by means of a sanitary inspection service and by instituting such processes as pasteurization of milk.

Water.—The health department assumes the responsibility of determining the sanitary quality of the water supply and of causing the necessary protective measures to be instituted.

Control of acute communicable diseases.—This is accomplished by lessening the possibility of contact with persons suffering from transmissable diseases; by instituting such measures as immunization, which will increase the power of resistance of the individual; by providing facilities whereby communicable diseases may be treated in the most effective manner; and by studying the various factors and influences which may determine the prevalence of such diseases.

Control of tuberculosis.—The plan embraces a careful search for cases of tuberculosis and persons in contact with cases; employment of nurses to assist in the home care of the sick; and the establishment of facilities for hospitalizing patients who can be treated more satisfactorily in institutions.

Venereal diseases.—Facilities for the treatment of infected individuals are made more readily available and other control measures are instituted which will tend to lessen the possibility of the transfer of the infection.

Maternity hygiene.—Expectant mothers are afforded facilities for acquiring information concerning the hygiene of this period. Clinics and nursing service are made available to those not in a position to secure such care through private sources.

Child hygiene.—From birth the child is placed under the supervision of a private physician or a clinic, and nurses periodically visit the homes to instruct mothers in the proper care of children. Facilities are established in the schools and elsewhere whereby physical defects

and disorders can be located in order that parents may institute corrective measures.

Industrial and adult hygiene.—Conditions under which individuals work are made as sanitary and healthful as possible, and every safeguard is thrown around the workers in order that their health may be maintained in the best possible condition. They are protected from hazards which can be avoided.

Degenerative diseases.—Diseases, such as heart disease, diabetes, kidney disorders, and cancer are now taking a great toll of life. Much of this loss can be avoided by the detection of these conditions in their early stages.

Laboratory.—Many diseases and disorders as well as the sanitary quality of milk, water, and other articles of food can not be determined except with the aid of a laboratory. As a consequence, a satisfactory community health program must include diagnostic laboratory facilities.

Miscellaneous service.—Each community may have problems of its own, such as malaria, plague, goiter, dysentery, intestinal parasites, and many other diseases which are preventable, at least in part, and for which science has made available corrective measures.

PUBLIC HEALTH ORGANIZATION

The extent to which each of the activities enumerated are developed in a given community may be determined by such factors as available funds, the needs of the community, or the relative importance locally of the several services. The plan under which health service is being performed in Knoxville and the efficiency and adequacy of such services are discussed in succeeding sections of this report.

The health of any community is influenced by the health of contiguous areas. Furthermore, a State health department has certain local responsibilities. It is, therefore, necessary briefly to review the plan of health service of Knox County and the State of Tennessee and the relationships of these organizations to the health service in the city of Knoxville.

State department of public health.—The State Department of Health of Tennessee is located at Nashville. It has general supervision over matters pertaining to the health and lives of the people of the State. Certain standards of public health practice are defined in State laws and regulations of the State department of health, and the State department of health is charged with their enforcement. Such laws and regulations cover registration of births and deaths, control of communicable diseases, construction and operation of water and sewage treatment plants, stream sanitation, and similar items related to the protection of the public health. A few services must of neces-

sity be rendered directly to the individual citizens of the State by a State department of health, but it is the policy of the Tennessee State Department of Health to discharge its responsibility to local areas by promoting the establishment of and working through effective local health organizations. The State department renders financial assistance to such local health organizations and exerts a certain amount of supervisory influence over them, largely by a plan of consultation service. State health activities pertaining to food are under the State department of agriculture. Those pertaining to health and safety in industry are discharged by the State department of labor. Physicians are licensed by the State medical examining board. The manner in which the State department of health participates financially and technically in the bureau of health of Knoxville is discussed in succeeding sections of the report.

County health service.—On July 1, 1928, the county, in cooperation with the State department of health, established a county department of health to serve Knox County, exclusive of Knoxville. The personnel, at the present time, consists of one full-time medical health officer, one sanitary inspector, two public health nurses, and one clerk. The total budget is $14,656, of which $9,656 is contributed by the county, and $5,000 by the State department of health. The county department of health, in so far as its limited resources permit, conducts a generalized public health program directed toward the prevention of illness and the promotion of general health. A physician from the Beverly Hills Sanatorium operates the tuberculosis clinics. Patients suffering from venereal diseases are cared for at the Knoxville city bureau of health venereal disease clinic. The county employs one county physician and one visiting nurse to care for the sick poor. Patients may be seen in the office of the county physician, or, when necessary, they are treated in their homes. Those suffering with tuberculosis are hospitalized at Beverly Hills Sanatorium. The county has a contract with the Riverside-Fort Sanders Hospital for hospitalization of white patients, and with the city of Knoxville for hospitalization of colored patients at the Knoxville General Hospital.

HISTORY OF PUBLIC HEALTH SERVICE IN KNOXVILLE

Status in 1923.—In 1923 a survey of public health service in Knoxville was made by Surg. Carroll Fox of the United States Public Health Service. At that time the city health department was under the charge of a physician engaged in private practice who devoted but a few hours a day to the work of the department. The office of the city health department and the laboratory of the city health department were combined and operated in conjunction with the private

laboratory and private office of the city health officer. The personnel of the city health department was as follows:

Health officer, part-time	1
Clerks	2
Laboratory technicians	1
Inspectors	5
Fumigators	1

The total city appropriation for health work proper was $11,000. In addition, the city subsidized the venereal disease clinic of the health center to the extent of $3,000, making the total appropriation by the city for the protection of the public health $14,100. The records, however, credit the city with an expenditure of $17,404.

The Knoxville Health Center was organized in 1920 to supplement the program of the city health department and to provide means whereby indigent persons might obtain ambulatory treatment and nursing care. The building also housed the Red Cross, Tuberculosis Society, and a branch laboratory of the State health department. The cost of the health center proper was $26,333, which was defrayed by private donations and miscellaneous receipts.

The school board was employing 2 white physicians and 1 colored physician, all on a part-time basis, 4 white nurses and 1 colored nurse, and 1 supervisor of nutrition. The program then, so far as the records indicate, appears to have been very much as it is at the present time, except for a slight increase in the nursing service. The approximate expenditure was $10,000.

In summary, it appears from the records that the total number of employees engaged in health work during the fiscal year 1922–23 was as follows:

Health officer, part-time	1
School and clinic physicians, part-time	5
Sanitary inspectors	6
Laboratory technicians	1
Public health nurses	13

The total expenditure by all agencies including the health center was $53,737, or 61.5 cents per capita. The appropriation for the city health department proper, however, was only $17,404, or 19.9 cents per capita.

Subsequent progress.—A trained public health officer was employed on a full-time basis in May, 1924. Since that time other technical positions have been placed upon a professional and full-time basis. The total number of technical employees engaged by the city bureau of health has increased from 10 in 1923 to 55 at the close of 1929. In some instances this increase represents merely a transfer of personnel from nonofficial to official agencies, while in other cases it represents an absolute increase in number.

Recorded expenditures for health service exclusive of board of education and nursing fees

Fiscal year	Total amount	Per capita	Fiscal year	Total amount	Per capita
		Cents			*Cents*
1922–23	[1] $53,737.00	61.5	1926–27	$62,531.76	63.6
1923–24	[1] 55,000.00	60.0	1927–28	66,387.23	65.7
1924–25	58,000.00	62.5	1928–29	65,061.73	63.8
1925–26	61,298.75	64.1	1929–30	74,282.00	69.7

[1] Estimated.

It was not always possible to analyze these expenditures in sufficient detail to segregate expenditures for public health from funds used for other purposes. The figures do not always represent expenditures for comparable items. For example, up to 1927 the cost of the city physicians was included with the health service; prior to the opening of the contagious disease hospital the cost of the smallpox pest house was charged to the bureau of health; and in like manner certain of the health-center clinics received a small subsidy from the city, but the entire support of the clinics was credited to the budget for health service. Appropriations made by the school board and nursing fees are not included since the fiscal year 1924–25, but the fiscal practice of previous years could not be ascertained. From the meager information obtainable the following statement concerning expenditures seems warranted: During the fiscal year 1922–23 the appropriation for public-health work given to the bureau of health was $17,404, or approximately 20 cents per capita; during the fiscal year 1929–30, the appropriation for public-health service given to the bureau of health was $74,282 or 69.7 cents per capita. A very large part of this increase in expenditure has occurred through the transfer of personnel and activities of privately supported agencies to the city bureau of health and does not represent any great increase in total personnel or service. During the period certain other significant improvements were effected.

The city has constructed a thoroughly modern water treatment plant with sufficient reserve capacity to meet increase in population for some time to come. The service has been extended so that now 96.4 per cent of the dwellings are connected to the public supply.

More than 6,000 surface privies have been replaced by sanitary pit privies. Recently a $2,000,000 bond issue was passed, providing for the construction of sewers. When the projected sewer extension work shall have been completed, sewers will be available to approximately 90 per cent of the dwellings.

The standard milk ordinance recommended by the United States Public Health Service and the State department of health has been passed and the milk supply has been improved very markedly. In a recent rating of the Knoxville milk supply made by the State department of health, raw milk rated 91 per cent, raw milk for delivery to

plants 89 per cent, and pasteurization 63 per cent of compliance with the provisions of the ordinance.

A modern diagnostic laboratory has been established in a building devoted exclusively to the purpose. This laboratory is operated in conjunction with a branch laboratory of the State department of health.

In the interval since 1923, when the office of the city health department was located in the private office of the health officer, the department has occupied different quarters, including the city market building, welfare building, and health center, but now it is quite adequately housed in a separate building, adjacent to the city hall, which has been leased by the city. During this time practically all health activities formerly borne by voluntary agencies have been transferred to the city and are now being conducted by the city bureau of health.

Further details concerning the present status of the public health service in Knoxville, together with recommendations for the future, appear in succeeding parts of this report.

Summary of ratings, 1926, 1927, 1930

Item	Appraisal form allowance, 1926–1927	Knoxville score, 1926	Per cent, 1926	Knoxville score, 1927	Per cent, 1927	Appraisal form allowance, 1930	Knoxville score, 1930	Per cent, 1930
Vital statistics	60	48	80	60	100	50	43.5	87
Communicable disease control	175	115	65.7	119	68	160	124	77.5
Venereal disease control	50	46	92	50	100	50	43.5	87
Tuberculosis control	100	26	26	43	43	90	63.3	70.3
Maternity hygiene [1]	350	210	60	238	68	80	57.2	71.5
Infant hygiene [1]						80	47.8	59.8
Preschool hygiene [1]						80	30.2	37.7
School hygiene [1]						120	70.2	58.5
Food and milk control [2]	175	99	56.5	111	63.4	70	51.2	73.1
Sanitation [2]						80	49.5	61.8
Laboratory	70	51	72.8	53	75.7	60	56.8	94.6
Popular health instruction	20	15	75	15	75	40	20.8	52
Cancer control	0					20	0.0	
Heart disease control	0					20	0.0	
Total	1,000	610	61.0	689	68.9	1,000	658.0	65.8

[1] These services were combined under the heading "Health of the Child" in the second edition of the appraisal form.

[2] These services were combined under the heading "Sanitation" in the second edition of the appraisal form.

NOTE.—The total score attained in 1924 was 351 out of a possible 1,000 points, but neither the appraisal form allowance nor the score attained in the several items of service could be ascertained.

The health service of Knoxville was appraised in 1924 by Dr. W. S. Rankin, in 1926 by Dr. St. Clair Drake, in 1927 by Dr. W. H. Enneis, and in 1930 by the writer. In each instance the appraisal form for cities, developed by the Committee on Administrative Practice of the American Public Health Association, was used, and the score was based on the service performed during the preceding year. Presumably the first edition of the appraisal form was used by Doctor Rankin in 1924. The second edition of the appraisal form for city health work was used for the 1926 and 1927 surveys, while the third edition was used for the 1930 survey. The weights given the several

items are not the same in the three editions of the appraisal form. It is, however, estimated that the standards of the 1929 revision are about 10 per cent higher than those of the second edition.

PRESENT PLAN OF SERVICE ORGANIZATION

Services.—The following health and related services are performed by the agency under which the services are listed:

City bureau of health:
- Registration of births and deaths.
- Control of communicable diseases.
- Environmental sanitation.
- Control of food and milk.
- Infant and preschool hygiene.
- Public health and bedside nursing.
- Venereal disease and tuberculosis clinics.
- Laboratory.
- Popular health instruction.
- Dental clinic.

Knoxville school board:
- Physical examination of school children.
- Health teaching.
- Dental clinic.
- Salary of five public-health nurses employed by the city bureau of health.

Knoxville General Hospital:
- General hospital service.
- Contagious-disease hospital.
- Out-patient department including prenatal clinic.

City physicians:
- Treatment of patients in homes and city jail.
- Determination of eligibility from the medical point of view for admission to the General Hospital.

Beverly Hills Sanatorium board:
- Beverly Hills Tuberculosis Sanatorium.
- Assistance in conduct of tuberculosis clinics for city and county.

Department of public works:
- Garbage and refuse collection and disposal.
- Operation of water and sewerage systems.
- Plumbing and housing inspection.

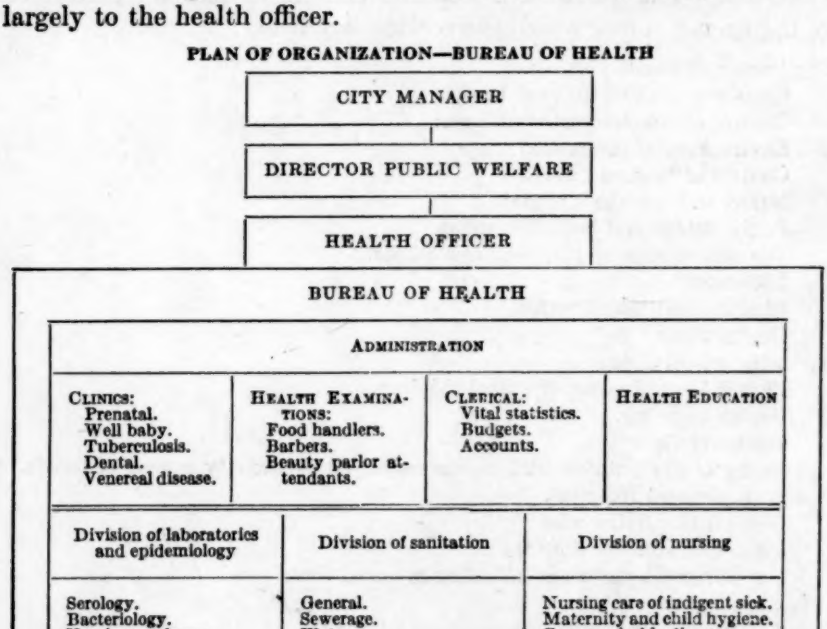
Nonofficial health agencies:
- Nonofficial health agencies do not conduct independent health activities but rather supplement the work of official health agencies.

Organization of Bureau of Health.—The bureau of health is in the department of public welfare. The health officer is appointed by and serves at the pleasure of the city manager. He, however, is accountable to the director of public welfare for the conduct of the bureau of health. The city charter specifies that the health officer may be either a physician licensed to practice medicine in Tennessee or a doctor of public health. The qualifications for other employees are not specified. No mention is made in the charter or in ordinances of

the time employees shall devote to their duties or the conditions under which they may engage in other activities.

The bureau of health operates on a budget which is prepared by the health officer. It must be approved by the director of public welfare and the city manager before being presented to the city council. The internal organization and management of the bureau is left very largely to the health officer.

PLAN OF ORGANIZATION—BUREAU OF HEALTH



PERSONNEL

Position and number of employees

Position	Number of persons		Total
	Full-time	Part-time	
HEALTH DEPARTMENT			
Health officer	1		1
Epidemiologist	1		1
Clinic physicians		6	6
Dentists		2	2
Nurses	18		18
Inspectors	11		11
Veterinarians		2	2
Technicians	4		4
Other	14	2	16
Total	49	12	61
BOARD OF EDUCATION			
Physicians		6	6
Dentists		2	2
Nurses	5		5
Nutritionist	1		1
Total	6	8	14
Grand total	55	20	75

Qualifications

[Full-time city health department employees]

TRAINING AND EXPERIENCE—PUBLIC HEALTH PHYSICIANS

No.	Personnel designation	Education (years of resident study)				Year of medical graduation	Public-health experience (in years)
		High school	College	Medicine	Public health		
1	Health officer	4	2	4	1	1921	9½
1	Epidemiologist	4	2	4	1	1921	2½

TRAINING AND EXPERIENCE—SANITARIANS

No.	Personnel designation	Education (years of resident study)				Public-health experience (in years)
		High school	College	Public health	Other scientific profession	
1	Chief sanitary officer	4	1	1½	1½	7
2	Sanitary officer	4	4	½	None.	8
3	do	4	1	½	None.	2½
4	do	4	None.	None.	None.	5
5	do	None.	None.	None.	None.	1
6	do	None.	None.	None.	None.	23
7	Dairy inspector	4	4	None.	None.	2½
8	Assistant dairy inspector	4	6	None.	None.	½

TRAINING AND EXPERIENCE—PUBLIC HEALTH NURSES

No.	Personnel designation	Education (years of resident study)				Year of graduation, general nursing	Public health experience (in years)
		High school	College	General nursing	Public health		
1	Director	4	4	3	1	1922	7
1	Supervisor	4	4	3	1	1912	8
1	do	4	0	3	[1] 12	1908	9
1	Staff nurse	2	0	3	0	1909	4
1	do	3	0	3	0	1916	6
1	do	1	0	3	0	1917	3
1	do	4	0	3	0	1919	4
1	do	2	0	3	0	1919	4
1	do	4	0	3	0	1919	5
1	do	4	1	3	0	1920	4
1	do	4	0	3	0	1921	5
2	do	2	0	3	0	1922	5
1	do	3	0	3	0	1922	1
1	do	2	0	3	0	1923	1½
1	do	2	0	3	0	1924	4
1	do	2	0	3	0	1924	3
1	do	1	0	3	0	1924	½
2	do	4	0	3	0	1926	1
1	do	3	0	3	0	1927	2
2	do	4	0	3	0	1928	1
2	do	4	0	3	0	1929	1

[1] Weeks.

EXPENDITURES (FISCAL YEAR 1928-29) [1]

City bureau of health:	Amount expended
Administration	$7,095.49
Vital statistics	1,025.87
Communicable disease control	2,031.16
Venereal disease control	10,506.35

[1] These expenditures do not include the operation of the tuberculosis sanatorium, the communicable-disease hospital, and certain clinics at the general hospital which are of a public-health character.

City bureau of health—Continued.	Amount expended
Infant hygiene	$999.00
Public health nursing	12,150.53
Milk control	5,572.99
Other foodstuff control	5,409.20
Public health laboratory	7,864.97
General sanitation	12,174.45
Miscellaneous	231.72
Total	65,061.73
Per capita	.638
Board of education:	
Total expenditures	12,265.00
Per capita	.118
Metropolitan Life Insurance Co.:	
Total expenditure	22,160.00
Per capita	.213
Grand total expenditures	99,486.73
Total per capita expenditure	.969

COMMENTS

In Knoxville, health and hospital services are administered by separate bureaus under the department of welfare of the city government, and all employees serve at the pleasure of the city manager. A great many health and hospital administrators feel that these services, either singly or combined, should constitute a primary unit of government accountable to the chief executive either directly or through a board.

The view is also held by many that a greater stability of organization will obtain and a higher type of person will be attracted to professional positions when some definite legal provision is made for continuity of tenure. It must, however, be said that under the present plan of governmental organization in Knoxville both health and hospital services have advanced quite satisfactorily but for some unknown reason the several bureaus have not been properly coordinated on a common purpose. This might be accomplished through the establishment of an advisory council in which would be represented all agencies and organizations directly concerned or who have an interest in matters pertaining to health.

The internal organization of the bureau of health appears to be quite satisfactory. Some advantage might be gained through the establishment of a division of medical services in which would be placed control of communicable diseases, tuberculosis, and venereal diseases, maternity and child hygiene, and public-health nursing. The desirability of having this arrangement may be increased as the above services become more fully developed.

Persons in administrative and the more highly technical positions appear to be well qualified. Many of the staff nurses and the sanitary officers, however, have had little or no special public-health training.

The provision of the charter regarding the qualifications of the city health officer in some respects does not conform to the State law, which specifies that a health officer must have graduated from a reputable medical school.

The city is to be commended for the rapidity with which it has increased its expenditure for public health, even though much of this increase has been consumed in taking over activities formerly supported by private agencies. The present appropriation from city funds (63.8 cents per capita) and the total appropriation by all agencies, official and nonofficial (96.8 cents per capita) is far below the amount required to support properly the services embraced in the Knoxville program. The support of a health program sufficient to meet the needs of the average city requires an annual expenditure of about $2 per capita. Knoxville should therefore look forward to additional expenditures for public-health service.

VITAL STATISTICS

Births and deaths from selected causes [1]

		1918	1919	1920	1921	1922	1923
Live births	Number	993	1,177	1,558	1,758	1,800	1,872
	Rate	13.5	15.4	19.7	21.5	21.3	21.4
Stillbirths	Number [2]						123
	Rate						65.7
Total deaths	Number	1,305	1,084	1,346	1,196	1,189	1,371
	Rate	17.7	14.2	17.0	14.6	14.1	15.7
Deaths under 1 month of age (neonatal)	Number	64	74	98	83	105	83
	Rate	64.4	62.9	62.9	47.2	58.3	44.3
Infant deaths (under 1 year)	Number	171	170	219	210	187	207
	Rate	172.2	144.5	140.6	119.5	103.9	110.5
Maternal deaths (143-150)	Number	18	16	18	37	28	25
	Rate	18.1	13.6	11.6	21.1	15.6	13.4
Typhoid fever (1)	Number	13	15	21	18	20	13
	Rate	17.6	19.6	26.5	22.0	23.6	14.9
Smallpox (6)	Number	1	0	0	0	0	1
	Rate	1.4	0	0	0	0	1.1
Measles (7)	Number	3	4	70	3	2	15
	Rate	4.1	5.2	88.5	3.7	2.4	17.2
Scarlet fever (8)	Number	1	2	4	3	2	3
	Rate	1.4	2.6	5.1	3.7	2.4	3.4
Whooping cough (9)	Number	19	2	22	11	6	7
	Rate	25.8	2.6	27.8	13.4	7.1	8.0
Diphtheria (10)	Number	10	19	22	8	8	8
	Rate	13.6	24.9	27.8	9.8	9.5	9.2
Influenza (11)	Number	213	67	92	17	41	91
	Rate	289.0	87.7	116.3	20.8	48.5	104.1
Tuberculosis (all forms) (31-37)	Number	140	131	124	116	108	134
	Rate	190.0	171.5	156.8	141.6	127.7	153.3
Cancer (43-49)	Number	43	45	62	58	62	62
	Rate	58.3	58.9	78.4	68.4	73.3	70.9
Pellagra (54)	Number	24	12	11	17	20	20
	Rate	32.6	15.7	13.9	20.8	23.6	22.9
Heart diseases, all forms (87-90)	Number	93	94	93	95	108	112
	Rate	126.2	123.0	117.6	116.0	127.7	128.2
Pneumonia (all forms) (100-1)	Number	119	100	120	87	107	120
	Rate	161.4	130.9	151.7	106.2	126.5	147.6
Diarrhea and enteritis under 2 (113)	Number	49	27	35	67	41	69
	Rate	66.4	35.3	44.2	81.8	48.5	78.9
Acute and chronic nephritis (129)	Number	99	80	75	78	81	106
	Rate	134.2	104.7	94.8	95.2	95.7	121.3
Auto accidents (188c)	Number	1	10	16	14	20	14
	Rate	1.4	13.1	20.2	17.1	23.6	16.0

[1] The numbers and rates used in this table were prepared from the records of the State registrar of vital statistics. In many instances these figures do not agree with reports of the Knoxville Bureau of Health. These discrepancies are discussed in other sections of the report.
[2] Not tabulated prior to 1923.

Births and deaths from selected causes—Continued

		1924	1925	1926	1927	1928	1929
Live births	Number	1,994	2,138	2,148	2,501	2,368	2,256
	Rate	22.1	23.0	22.5	25.4	23.4	21.7
Stillbirths	Number [1]	119	78	124	153	128	101
	Rate	59.7	36.5	57.7	61.2	54.0	44.7
Total deaths	Number	1,344	1,313	1,425	1,544	1,560	1,400
	Rate	14.9	14.1	14.9	15.7	15.4	13.5
Deaths under 1 month of age (neonatal)	Number	100	81	91	92	92	91
	Rate	50.2	37.9	42.3	36.8	38.8	40.3
Infant deaths (under 1 year)	Number	215	179	185	184	211	181
	Rate	107.9	83.8	86.0	73.6	89.0	80.2
Maternal deaths (143-150)	Number	22	22	10	28	16	23
	Rate	11.0	10.3	4.7	11.2	6.8	10.2
Typhoid fever (1)	Number	33	21	20	12	12	16
	Rate	36.6	22.6	20.9	12.2	11.9	15.4
Smallpox (6)	Number	1	0	0	0	0	0
	Rate	1.1	0	0	0	0	0
Measles (7)	Number	21	0	6	13	6	0
	Rate	23.3	0	6.3	13.2	6.0	0
Scarlet fever (8)	Number	3	2	1	3	2	1
	Rate	3.3	2.2	1.0	3.1	2.0	1.0
Whooping cough (9)	Number	12	12	6	16	3	12
	Rate	13.3	12.9	6.3	16.3	3.0	11.6
Diphtheria (10)	Number	3	8	10	3	6	9
	Rate	3.3	8.6	10.5	3.1	6.0	8.7
Influenza (11)	Number	37	46	57	48	112	88
	Rate	41.0	49.5	59.6	48.8	110.9	84.7
Tuberculosis (all forms) (31-37)	Number	122	111	140	124	112	83
	Rate	135.5	119.5	146.4	126.1	110.9	80.0
Cancer (43-49)	Number	60	66	80	93	81	85
	Rate	66.6	71.1	83.7	94.6	80.2	81.9
Pellagra (54)	Number	18	42	54	60	34	28
	Rate	20.0	45.2	56.5	61.0	33.7	27.0
Heart diseases, all forms (87-90)	Number	138	133	172	180	166	146
	Rate	153.0	143.2	179.9	183.1	164.5	140.6
Pneumonia (all forms) (100-1)	Number	133	98	109	159	161	96
	Rate	147.6	105.5	114.0	161.8	159.4	92.4
Diarrhea and enteritis under 2 (113)	Number	63	52	56	31	61	37
	Rate	69.9	56.0	58.6	31.5	60.4	35.6
Acute and chronic nephritis (120)	Number	82	89	84	103	105	92
	Rate	91.0	95.9	87.9	104.8	104.0	88.6
Auto accidents (188c)	Number	24	23	35	19	33	45
	Rate	26.6	24.8	36.6	19.3	32.7	43.3

[1] Not tabulated prior to 1923.

Total live-birth and total death rates are per 1,000 population, stillbirth, infant death, and maternal death rates are per 1,000 live births. All other rates are per 100,000 population.

Analysis of birth and death rates.—The apparent low birth rates during the years 1918, 1919, and 1920 were probably due to incomplete registration. During the remainder of the period under consideration the rates were quite constant and about the same as those which obtained in the cities of the United States registration area. Figures on stillbirths prior to 1923 were not tabulated. During the succeeding years the stillbirth rates were slightly higher than those for the cities of the registration area.

The total death rates have remained from 1 to 2 points above the cities of the registration area, but many cities of Tennessee have even higher rates. Infant (children under 1 year) mortality rates are unusually high, averaging about 30 points above cities of the registration area and far in excess of the rates which might be expected where preventive measures are adequately and effectively applied.

The average maternal mortality rate is well above the usual experience; and for certain years has been twice that of the cities of the registration area. To a limited extent the high rates may be attributed to nonresident deliveries in local hospitals; but the rates can not be explained on the basis of deliveries by midwives or the negro population. While there has been some fluctuation in these rates from year to year, there has not been any great change since 1918.

Knoxville has one of the highest typhoid fever death rates of any city of its size. A very perceptible drop occurred in 1926, due probably to improvement in sanitation; but since that time there has been a slight upward trend. The smallpox rates, in contrast with those for most diseases, are very good, there being only three deaths reported during the last 12 years. The vigorous vaccination program pursued by the city can probably be credited with at least a part of this achievement. There seems to be an excessive number of deaths from both measles and whooping cough, especially during epidemic years. The death rates from diphtheria and scarlet fever are about the usual experience in cities throughout the country, although these diseases are, as a rule, quite mild in the southern portion of the United States. The tuberculosis rates show a very definite downward trend. While the rates compare very favorably with those of the State as a whole, they are unduly high, particularly since city deaths occurring in the Beverly Hills Sanatorium are not charged to Knoxville. City deaths in Beverly Hills Sanatorium for the past three years were as follows: 1927, 18; 1928, 30; 1929, 44.

The pellagra problem is indeed a serious one, the death rates being consistently the highest for any city or county in the State. The diarrhea and enteritis (under 2 years) death rates are high and fail to show any sustained downward trend. The number of deaths from this as well as other conditions peculiar to young children clearly indicate the need for a more vigorous child hygiene program. The death rates from malignant and degenerative diseases (cancer, heart disease, nephritis) are far below the rates which obtain in the cities of the registration area. The age distribution of the population (large number below 45 years) as given in the 1920 census might account for some of the difference. The figures on age distribution compiled for the 1930 census are not available, but it is questionable whether there will be any great change from the 1920 distribution. Beyond the facts stated, there is no apparent cause for the low rates for malignant and degenerative diseases.

The number of deaths due to automobile accidents continues to increase. In 1919 there were 10 deaths due to this cause; in 1929 there were 45 deaths.

HEALTH SERVICES

REGISTRATION OF BIRTHS AND DEATHS

The city of Knoxville was admitted to the United States registration area for deaths in 1917 and the birth registration area in 1927, having been taken in, in each instance, with the State of Tennessee. At the present time, Knoxville constitutes a single registration district. The health officer is registrar, but the duties are performed by a clerk in the office who acts as deputy. A copy of each certificate is retained and the original is sent to the State registrar at Nashville. The data appearing on the certificates are quite completely tabulated and analyzed by the bureau of health, although in some instances standard practice was not inaugurated until the beginning of 1930.

Comments.—The registration of births and deaths receives a score of 43.50 out of a possible 50 points. In the main, practice is quite good, but some loss was sustained since certain essential data were not available for years previous to the current one. There is a striking discrepancy between the statistics of births and deaths compiled by the city registrar and those compiled by the State registrar, notwithstanding the fact that the same source material is used by both. In part, this discrepancy may be explained by the fact that the city registrar is not using the Manual of Joint Causes of Death, thus bringing about occasional differences in the assignment of cause of death. Another possible reason is that the registration district formerly included a part of Knox County. These two reasons, however, are not considered sufficient to account for such wide differences in basic data as were found. Differences between rates found in this study and rates appearing in earlier reports published by the city bureau of health are due largely to the fact that population estimates here used are based on censuses of 1920 and 1930 while estimates used by the city bureau of health in earlier publications were necessarily based on censuses of 1910 and 1920.

Recommendations.—It is recommended:

(1) That the State and the local registrars determine the various factors causing differences in figures and that corrective measures, including the use of the Manual of Joint Causes of Death, be instituted by the city registrar.

(2) That the copies of certificates retained by the local registrar be more securely bound and filed in such a manner as to insure their preservation.

(3) That certain principal causes of death, and infant and maternal deaths, be analyzed in more detail, such detailed analysis to be extended back over the years for which records are available.

COMMUNICABLE DISEASE CONTROL

The control of communicable diseases was handled directly by the health officer, until October 1, 1929, when financial aid was received from the State department of health thus making possible the employment of an epidemiologist on a permanent basis. The epidemiologist gathers the usual routine information on the major communicable diseases and these data are analyzed in quite a satisfactory manner. He also imposes the control measures such as quarantine and disinfection, and supervises the release. A special epidemiological study of typhoid fever has been in progress for the past several years. Cases of communicable disease are visited by the nurses who assist in educational work and do a certain amount of bedside nursing. Selected cases of communicable disease are hospitalized in the communicable disease unit of the General Hospital. This unit was opened in December, 1928; its capacity is 30 beds and it is thoroughly modern in design and equipment. It is operated by the Knoxville General Hospital in the same manner as the other divisions of the hospital are operated.

At the present time there is no organized program of immunization against diphtheria or typhoid fever. Several years ago the county medical society objected to such activities on the part of the city bureau of health and the practice was discontinued. It was, however, agreed that the physicians in their private capacity would immunize all persons who would apply at their offices, if the bureau of health would furnish typhoid vaccine and diphtheria toxin-antitoxin. Diphtheria immunization continues to be an exclusive activity of the private physicians. The nurses of the bureau of health, however, under the instruction of the private physician have continued to immunize contacts with active cases of typhoid fever. There is no accurate record of the total number of persons immunized against typhoid fever or diphtheria. The records, however, show that sufficient typhoid vaccine was distributed during the year to immunize 1,725 persons and sufficient diphtheria toxin-antitoxin to immunize 345 persons. Vaccination against smallpox is a requirement for admission to the public schools. This regulation of the city board of education seems to be quite thoroughly enforced. The bureau of health also vaccinates contacts with known cases of smallpox when circumstances constitute an emergency.

Comments.—The control of communicable diseases receives a score of 128.0 out of a possible 160. Reporting of communicable diseases is slightly more than 40 per cent of the requirements, even when diseases reported on the weekly summary report cards are included. These latter reports, however, are received rather late for the institution of effective control measures. Control practice otherwise is very

good. It would seem, however, that nurses could be utilized to a greater extent for gathering epidemiological information and for imposing control measures. The epidemiologist could then devote more time to the study and definition of public health problems and to determining the most effective method for their solution.

It seems rather peculiar that no cases of ophthalmia neonatorum have been reported or were otherwise known to the bureau of health. If one may judge the prevalence of gonorrhea among pregnant women by the presence of the infection among the clinic clientele, there is every reason to assume that cases of ophthalmia must be occurring, particularly since aggressive measures for prevention are not instituted, only 164 ampules of silver nitrate having been distributed.

The number of communicable disease patients hospitalized is slightly below the standard, although the performance is very good in view of the fact that the hospital was opened rather recently. Experience has demonstrated that it takes several years to popularize the use of a hospital for communicable diseases. The outstanding defect in the program for the control of communicable diseases is the small number of persons immunized against typhoid fever and diphtheria. At least until the sewerage system now contemplated has been installed and more homes are connected with it, a more aggressive typhoid immunization campaign is indicated. The present plan of having the physicians in their private practice do the immunization sounds very good in theory but in practice it does not seem to be effective since, from such records as could be obtained, there seems to be a distinct decrease in the number immunized each year since the plan was inaugurated. Every effort should be made by the health department to promote immunizations by physicians in their private practice. On the other hand, it is not sound practice and physicians are exceeding their prerogatives when they attempt to take away from the health officer his most effective method of combating certain diseases.

The communicable disease code does not conform with State laws and regulations of the State department of health. The present practice of following the State department of health regulations without having them enacted into local ordinances is not considered correct legal procedure. The present ordinance, which requires the muzzling of all dogs allowed to run at large and the destruction of those without muzzles, is essentially sound in principle but it is not enforced. If experience has proved that the enforcement of this ordinance is not feasible, a less drastic ordinance requiring the licensing of dogs might be substituted. In any event, however, there should be a more definite attempt to rid the city of stray and ownerless dogs, since the control of rabies and the relief from worry and expense incident to the

treatment of dog bites will ultimately depend on keeping the dog population at a minimum.

Recommendations.—It is recommended:

(1) That the reporting of communicable diseases be improved and that doctors be encouraged to telephone reports in addition to making reports on the weekly summary report cards.

(2) That the nurses be used to a greater extent for control measures and for collecting epidemiological data.

(3) That the epidemiologist project a program of study with a view to determining and defining public-health problems as well as improving public-health practices.

(4) That an effort be made to bring about a more extensive distribution of silver nitrate solution for prevention of ophthalmia neonatorum and better reporting of the disease.

(5) That the health officer be placed on the staff of the Knoxville General Hospital and be allowed to participate in the management of the communicable disease unit.

(6) That some plan be developed in cooperation with the county medical society whereby the bureau of health may actively engage in immunization, particularly against diphtheria, giving particular attention to children below the age of 5.

(7) That the communicable disease ordinances be revised so as to bring them into conformity with State laws and regulations of the State department of health.

VENEREAL DISEASE CONTROL

The city bureau of health operates a venereal disease treatment clinic for persons meeting the eligibility requirements common to all treatment clinics.[1] The venereal disease clinic is housed in the Knoxville General Hospital. The patients are treated by two part-time clinicians who are paid a nominal fee. The other employees are one social worker, one female nurse, one male attendant, and one clerk. During the year 1,806 patients made 31,467 visits to the clinic. In May, 1930, the clinic was opened to county patients, the county paying a nominal sum. The follow-up work and other social hygiene activities in connection with the clinic are performed for the most part by the social worker, who utilizes the services of the male attendant and the field nurses of the city bureau of health. The Camp Home for Friendless Women is operated by the city department of public welfare as a jail for female prisoners and a place of detention for venereally infected women who refuse to comply with clinic discipline. The city jail is used for male offenders. The police department also employs one policewoman who is frequently called upon to assist in venereal

[1] Eligibility requirements common to all treatment clinics, see Part II, "Care of the Sick."

disease control measures and social-hygiene activities. Certain of the voluntary agencies, notably the Church Mission of Help, assist in the social hygiene program, especially with unmarried mothers.

Comments.—Venereal disease control activities receive a score of 43.50 out of a possible 50 points. While the total number of cases reported is well above the standard, these reports are received almost exclusively from the clinics and scarcely any from the private physicians and hospitals. The clinic program is excellent, although the quarters are totally inadequate and the work is therefore done under a decided handicap. This condition is aggravated by the admission of county patients. The follow-up work on clinic patients appears to be very good, but it would seem that a more active program of follow-up work might be developed as a service to private physicians and other agencies concerned with the venereal disease problem.

Camp Home for Friendless Women is essentially a jail, and, while it may have some salutory influence in compelling clinic discipline, it is a decided handicap from the point of view of social restoration. If anything is to be accomplished in the latter field, it must be done in a place more suited for this purpose. Such an undertaking, however, should be regarded as a social enterprise and should be conducted as part of a larger scheme for salvaging those who are capable of social and economic readjustment. Such an outlay purely for the purpose of controlling venereal diseases is not likely to yield returns commensurate with the investment. Camp Home is discussed more fully in the section devoted to welfare.

A common impression is held locally that venereal diseases are unusually prevalent in Knoxville. In 1928 a study of venereal disease incidence in Tennessee was made by the United States Public Health Service, in cooperation with the State health department. The method pursued was to determine the number of persons under treatment by practicing physicians, clinics, and hospitals on a given day. The study revealed the following figures concerning the cases of both gonorrhea and syphilis among the white population of Tennessee cities.

	Case rate per 1,000
Memphis	17.02
Nashville	12.95
Chattanooga	18.71
Knoxville	8.72

It would therefore appear from these figures that the very excellent program of venereal disease control in Knoxville is having its effect and that the supposed excessive prevalence as compared with other cities does not exist. There seems to be a very wholesome attitude of concern on the part of the health authorities of Knoxville for the venereal disease problem.

Recommendations.—It is recommended:

(1) That a more definite attempt be made to secure reports from private physicians and hospitals and that a plan of follow-up service be developed for private physicians on those private cases who refuse to take adequate treatment.

(2) That more suitable and adequate clinic quarters be provided, thus making possible more satisfactory working conditions, more privacy for the patient and better separation of children and family groups from the common run of clinic patients.

(3) That the county pay a sum more in keeping with the cost of service rendered to county patients.

(4) That the clinic personnel be increased in order to lighten the load on the staff, thus making possible greater attention to the individual patient, particularly along the lines of social hygiene.

(5) That the present standards of eligibility for admission to the clinic be modified and liberalized for cases of family syphilis and that the six months' residence requirement be waived for at least the acutely infectious cases.

TUBERCULOSIS CONTROL

The city bureau of health operates one diagnostic clinic for white patients and another for colored. The former is conducted at the city bureau of health and the latter at the colored library. During the year 1,329 persons made 1,418 visits to these clinics. Early in the summer of 1930 a special childhood tuberculosis clinic was established. The home-nursing service is done by the field staff of the city bureau of health under the direction of a specialized tuberculosis nurse. The nurses served 874 patients to whom they made 2,395 home visits. Patients are hospitalized at the Beverly Hills Sanatorium, which is operated jointly by the city and county. During 1929, 161 adults and 28 children from Knoxville were hospitalized at this institution, the period of hospital residence being from six to eight months. The superintendent of the sanatorium is in charge of clinics for the city bureau of health, thus affording an opportunity for the selection of patients for admission to the sanatorium and a place to which patients can be discharged for further observation and management. There are no special provisions in the schools for children suspected of having tuberculosis. An active nutrition program, however, is in operation, and arrangements have been made whereby all children are given a hot noon lunch and the undernourished may also be given breakfast. One of the luncheon clubs operates a camp each summer for children predisposed to tuberculosis. The camp can accommodate about 20.

Comments.—Tuberculosis control receives a score of 63.30 out of a possible 90 points. The clinic service as now organized should be quite satisfactory when it becomes better established. As yet most patients are well advanced in the disease when they come to the attention of the clinic, and the number of visits per patient registered is far too low. The intensity of the nursing service is not as yet up to standard, and there is very serious question concerning the necessity for the specialized supervisor of tuberculosis nursing. The present system of selecting patients for admission to the tuberculosis sanatorium and discharging them to the field clinic should operate quite satisfactorily after it shall have been in operation for a reasonable period of time. The whole program seems to be developing quite apart from the private physicians, who should assume a greater responsibility for the management of the patient. There is a distinct need for a plan of cooperation between the bureau of health and the board of education whereby selected children may be given rest periods and have their school work adjusted to their physical condition. The Beverly Hills Tuberculosis Sanatorium is discussed in further detail in Part II, "Care of the Sick."

Recommendations.—It is recommended:

(1) That a more definite effort be made to locate a greater number of patients, especially those in the early stages of the disease.

(2) That the practicing physicians be utilized to a greater extent, especially in the management of patients following discharge from the sanatorium.

(3) That the schools establish special facilities for children predisposed to tuberculosis and that such work be conducted in close cooperation with the childhood tuberculosis clinic of the city bureau of health.

(4) That the number of visits by patients to the field clinic and by the nurse to the home of the patient be increased.

MATERNITY HYGIENE

In 1929, 2,256 births occurred, of which 2,230 were attended by physicians, 21 by midwives, and 5 were unattended. Approximately 30 per cent of births occurred in hospitals. A prenatal clinic is conducted twice a week by the Knoxville General Hospital at its outpatient department. One hundred and thirty-eight prenatal patients made 948 visits to this clinic. Patients not already under the nursing service are referred to the bureau of health. The nurses served 796 patients, to whom they made 4,066 home visits. A large percentage of the prenatal cases carried by the nurses were beneficiaries of the Metropolitan Life Insurance Co.

Comments.—Knoxville has a maternal death rate slightly higher than that of the other large cities of the State and considerably in

excess of that of the Registration Area. The unfavorable position of Knoxville in this regard can not be explained on the basis of the colored population or the number of deliveries by midwives. To a certain extent non-resident deaths play a part, but the number is not sufficient to explain the excess in deaths over that of comparable areas. There is no home delivery nursing service, and it may be desirable to develop a plan whereby nursing service at the time of delivery could be given in the home. The number of persons registered for prenatal clinic supervision is less than half of what it should be, although the number of visits per case registered is quite high. The maternity hygiene nursing service seems to have been fairly satisfactory during the past year except for the absence of a home delivery service.

In view of the fact that the Metropolitan Life Insurance Co. is to terminate its contract with the bureau of health for nursing service, it will become incumbent upon the nurses to develop some other method of approach. It is suggested that a plan might be developed whereby physicians would refer their private patients to the bureau of health for nursing service. Other desirable developments are a home delivery nursing service and a plan whereby patients may be admitted to the general hospital for delivery to be followed by a short period of hospitalization.

Recommendations.—It is recommended that:

(1) A thorough study be made of maternal mortality, with a view to determining the relative importance of the several causes of death and for devising methods whereby the death rate can be reduced.

(2) There be an expansion of the prenatal clinic and home nursing services.

(3) A revision be made of record system in order that a notation may be made of visits by patients to private physicians and of the instruction given to field nurses by private physicians.

(4) There be developed a home delivery nursing service and a greater utilization of the general hospital for obstetrical service through shortening the period of residence in selected cases.

INFANT AND PRESCHOOL HYGIENE

The infant and preschool age groups are handled very much as one. The bureau of health operates nine infant and preschool child health centers located in different parts of the city. These health centers are located in churches or other semipublic places. Six are for white children and three for colored. Two white practicing physicians and one colored physician are employed on a part-time basis and are paid a nominal fee for each clinic session. During the past year 276 clinic sessions were held. Five hundred and twenty-seven infants were registered at these clinics and they made 1,919

visits. The nursing service is performed by the bureau of health nursing staff as a part of their general nursing activities. The nurses carried 978 patients to whom they made 7,637 home visits. Baby boarding homes are not licensed by the city. The boarding of babies has not as yet developed on a very extensive scale. It is being undertaken in a limited way by the Children's Bureau, one of the community welfare agencies. The Junior League operates a day nursery in the mill section.

The preschool clinical service is not well developed, since only 188 children were registered at the clinics. These children made 1,658 visits. The same children were visited by the nurses, who made 1,310 home nursing visits. Each year an effort is made to examine children about to enter school for the first time. Last year 179 children were registered at such clinics but there is no tabulation of the defects found or the corrections effected.

Comments.—Infant hygiene received a score of 47.8 out of a possible 80, and preschool hygiene received a score of 30.2 out of a possible 80. The infant death rate for the past three years has averaged 80.9. While this rate compares very well with that for the State as a whole, and with many of the larger cities, it is far in excess of the death rate which obtains where modern public health practices are given effective application. When the present projected sewerage system shall have been completed, sanitation should then be quite satisfactory, and a further saving in child life will depend upon the personal instruction of mothers regarding infant care. The more intelligent and those of higher economic status should of course seek the advice of the family physician. For a large group, however, it will be necessary to establish means whereby this information may be easily obtained, as through infant welfare clinics, home nursing service, and the like.

The present clinical and nursing service for infants is about 50 per cent of what it should be. Similar services for the preschool children are totally inadequate. For example, 3,267 preschool children should have received clinical service when as a matter of fact but 188 were registered at clinics. Similar deficiencies exist in the nursing service. It also appears that a sufficient amount of work has not been done to detect and correct physicial defects among the preschool children. This is the age when corrective measures are most effective.

Recommendations.—It is recommended that:

(1) An extension be made of the clinical service for both infants and preschool children, notably the latter.

(2) There be an extension of nursing service for both infants and preschool children, especially the latter.

(3) A change be made in the record system whereby nurses may record visits of children to private physicians and instructions issued by private physicians to field nurses.

(4) There be a greater utilization of the private physician for infant and preschool hygiene work.

(5) A special study of infant mortality be made with a view to determining specific causes and devising effective and economical preventive measures.

SCHOOL HYGIENE

School hygiene work is administered by the city board of education. The personnel consists of one white and one colored physician who work one-half of each day throughout the school year; three white physicians who work 3½ hours per day for 2½ months while the annual physical examination is being conducted; one white dentist and one colored dentist employed for part-time throughout the year; one supervisor of health instruction and nutrition; and five nurses who are assigned to the general district nursing service of the city bureau of health. The total expenditure for health work, not including the salary of the supervisor of health instruction and nutrition, was $12,265.

The pupils included in the program of medical inspection are the kindergarten children and those of the first, fourth, and sixth grades, the R. O. T. C. of the high school (possibly half of the boys in attendance), and all pupils engaging in athletics. Vaccination is a requirement for attendance. The children able to pay are expected to be vaccinated by their family physician, but the indigent are cared for by the school physician. The nurses do the routine inspection for communicable diseases and skin diseases, assist in the annual physical examination of children, and perform home visits for the purpose of inducing correction of physical defects. Dental clinics are conducted in the schools by the school board on Tuesday, Thursday, and Friday of each week and by the city bureau of health on Monday and Wednesday of each week at the office of the bureau of health. The dental work in the schools is limited for the most part to examination, prophylaxis, and extraction, while work done by the bureau of health is very largely reparative in character.

The annual physical examination is conducted without removal of the clothing, and about two minutes are required for the examination of each child. The defects are reported to the parents by written notice, and the nurses do follow-up work to induce the correction of physical defects. The number of defects found is somewhat below that usually encountered, and this is particularly true of those defects which can be detected only by the more thorough type of examination. There is no record of the number of children who went to the family physician for the more thorough type of examination. The nurses

record those corrections on which home visits are made but there is no record of other corrections.

The school board engages in quite an extensive nutrition program. The supervisor of health instruction has charge of the nutrition work, including the cafeteria. All children are weighed twice each year and the underweight children are weighed monthly. Underweight children are given a free lunch in the middle of the day if they are unable to pay for same. The more extreme cases are also given a free breakfast.

The required amount of formal classroom instruction in health is given, but below the seventh grade it is not based upon a standard textbook. The direction of this health teaching is a function of the supervisor of health instruction and nutrition. There are no special classes of any type for the underprivileged children, irrespective of whether the handicap be physical or mental. The board of education employs a director of physical education but the work is not coordinated with that of the city director of recreation and there appears to be very little joint use of facilities. Only 5 of the 36 elementary schools have 4 acres or more of playground and only 1 high school out of a total of 6 high schools has 6 acres or more of playground. Several schools are lacking in adequate toilet and lavatory facilities.

Comments.—The program concerning the hygiene of the school child is quite extensive and diversified, but its several elements are not properly correlated and directed toward the accomplishment of specific objectives. The greatest defect in the program is the separation of school medical service from other elements of the child-health program. The frequent, almost annual, turnover of medical personnel precludes the possibility of there being a continuity of policy in regard to physical examinations. The practice of devoting not more than two minutes to the examination of each child, without a concerted effort to bring such children to the attention of the family physician for a more thorough physical examination, is not considered good practice and rather tends to discredit the whole procedure. There does not appear to have been a definite check-up of the number of persons brought to the attention of the family physician or of the number of defects corrected.

The number of nursing visits is well above the standard requirement, although there may be some question concerning the effectiveness of these visits as may be judged by the limited corrective work of which there is record. There appears to be a great deal of complaint against the nursing service, very largely on the grounds that a nurse is not always available in the schools when she might be desired for first aid and similar work. The real foundation for this complaint could not be determined unless it be a desire for a nursemaid type of service.

A special study of health teaching was made by Mrs. Arch Trawick, consultant in health teaching, of the State health department.

The teaching of health was reported by her to be very well organized, well directed, and, in general, of a very high order. Impression, however, was gained that there was lack of correlation between the teaching of health and the other branches of the health service, and a consequent lack of understanding on the part of the child concerning the necessity of having corrective work performed. The system of awards for corrective work stresses dental and nutrition work at the expense of other essential corrections.

The program of physical education as described should be quite satisfactory, although the facilities are rather limited and they do not seem to be used to the fullest extent possible. The reason for the lack of coordination and definite integration between the physical education work of the schools and work of the city director of recreation was not understood but appears to constitute a serious defect in the program. On numerous occasions and by previous surveyors it was recommended that the medical aspect of the school hygiene work be placed under the city bureau of health. For reasons, many of which were not ascertained, such a transfer was not made. In fact a more definite separation is contemplated. At the opening of the coming school term the board of education will discontinue subsidizing five nurses of the bureau of health and will establish its own nursing service, thereby effecting a complete separation between the work of the board of education in the field of health and the bureau of health. Such a step will completely nullify all attempts which have been made to provide a unified program of child-health service continuing from infancy to adult life.

Recommendations.—It is recommended:

(1) That the school board transfer to the city bureau of health all of its activities pertaining to child hygiene except the formal teaching of hygiene.

(2) That the city bureau of health employ a full-time physician, trained in child hygiene, who will have charge of the school hygiene activities and assist in the conduct of the infant and preschool child welfare stations operated by the bureau of health.

(3) That physical examinations of children be more thorough or that a more consistent attempt be made to place the child in the hands of the family physician for a more thorough type of physical examination, especially when serious defects are suspected or when a complete examination is otherwise indicated.

(4) That the infant and preschool child welfare stations operated by the bureau of health be utilized for the more thorough type of physical examination of selected school children who are unable to pay the cost of such service by a private physician.

(5) That a more definite attempt be made to enlist the interest of the parents by having a larger percentage of them present at the physical examination.

(6) That a change be made in the record system whereby visits to the physician will be entered as well as all corrections irrespective of who was responsible for the individual correction.

(7) That health instruction and other phases of child hygiene be more definitely correlated in order that the child as well as his teacher may acquire a better understanding of the whole program.

(8) That schools not at the present time so equipped be supplied with sanitary drinking fountains, adequate lavatory facilities, individual towels and soap.

(9) That there be an extension of the recreation facilities of the school board and the development of a plan whereby both the facilities and personnel of the department of physical education of the school system and of the city bureau of recreation may be united on a common program of physical education and recreation which will extend throughout the year.

(10) That the proposed plan of developing a separate school nursing service be reconsidered and that an effort be made to develop a consolidated, generalized nursing service in cooperation with the city bureau of health.

(11) That special classes be organized in the school system for the physically and mentally handicapped and that a system of supervised rest be instituted for children predisposed to tuberculosis.

(12) That the "Blue Ribbon Program" of the State department of health be introduced as a means of promoting the correction of physical defects.

FOOD AND MILK CONTROL

Food.—The sanitation of food producing and dispensing establishments is carried out as a part of the general sanitation program and under the direction of the chief of sanitation, who exercises sanitary supervision over the down-town food establishments and the principal ones on car lines in outlying districts. Other food establishments in the outlying districts are handled by a district inspector. Hotels and lodging houses are handled in very much the same manner and by the same personnel. The rating system used for food establishments is patterned after the principle underlying the standard milk ordinance. All food establishments are required to have hot water (170° F. or above) for dish washing. After being washed the dishes are immersed in a chlorine solution containing not less than 35 parts per million available chlorine. Food establishments meeting the requirements of the bureau of health are given a certificate of approval which is displayed in the establishment. About 50 per cent of the

restaurants and soda fountains have reached a degree of perfection meriting approval.

Milk.—The control of the milk supply is under the charge of a separate division accountable directly to the city health officer. The personnel consists of one chief inspector, one assistant inspector, and one office clerk. The employment of a third inspector is contemplated. The standard milk ordinance recommended by the United States Public Health Service and the State department of health was adopted by the city of Knoxville in 1924 and has been in effect since that time.

Milk is derived from 390 dairy farms, all of which are located within a radius of 50 miles. There are six pasteurizing plants. Sixty-one per cent of the milk is pasteurized. The pasteurizing machinery is not of recent design and is in rather bad repair, but the defects are being corrected. All farms are inspected twice each year, and the pasteurizing plants are inspected at least once each month. All cows are tuberculin tested and reactors are promptly removed. The consumption of sweet milk is approximately two-thirds of a pint per person per day. Formerly an attempt was made to control 170 small dairies selling a small quantity of buttermilk in the city of Knoxville, but the control of these dairies is being limited to one inspection per year.

Meat.—Most of the meat consumed in Knoxville is derived from plants under Federal supervision. The slaughtering of animals in the city of Knoxville, not under Federal supervision, is conducted at a single plant and is under city supervision. This plant, while rather old, is provided with refrigeration, a tank, and other necessary equipment. It is in fair sanitary condition. The city meat-inspection service is under the direction of a part-time veterinarian who is assisted by two lay inspectors, one of whom is on duty at the Knoxville abattoir while the other inspects the city market. Questionable carcasses and parts are tagged and held for subsequent inspection by the veterinarian. Farm-killed meat is permitted when organs are attached for inspection. Large animals, however, are not accepted under any conditions. Poultry is not inspected. A charge is made for inspection as follows: 2 cents for small animals, 10 cents for large animals, and 2 cents for parts of animals.

Comments.—Food and milk control received a score of 51.24 out of a possible 70 points. The sanitation of food producing and dispensing establishments seems to be very good. A loss of 17.8 points in total score was sustained because of insufficient pasteurization, only 61 per cent of the milk being pasteurized. While the pasteurization machinery is not of modern design and is not in good repair, the correction of these defects is now in progress. The inspection service for the farms and for the pasteurizing plants is quite efficient, though the

force is not adequate. A recent survey made by the State health department was conducted to determine the percentage of compliance with the provisions of the standard milk ordinance. Raw milk delivered to consumers received a rating of 91 per cent compliance, raw milk delivered to pasteurizing plants 89 per cent, pasteurization 63 per cent, and enforcement methods 91 per cent. In general, it may be stated that the Knoxville milk supply is quite satisfactory, except for the one outstanding defect—the low percentage of pasteurization. A milk supply can not be considered safe until all milk is properly pasteurized.

The local slaughterhouse is in fair sanitary condition and the inspection service seems to be well conducted. The chief defect lies in the inadequate inspection of home-killed meat and meat products. Prohibitory legislation is the only satisfactory method of handling the problem, but its passage and enforcement probably would not be feasible. Until the public and law enforcement officials become more sympathetic toward control measures for farm-killed meat, it is questionable whether much can be done in this field.

Recommendations.—The following recommendations are made:

(1) A more vigorous attempt to secure universal pasteurization of milk.

(2) Correction of defects in pasteurization machinery.

(3) More frequent inspection of pasteurization plants and producing farms.

(4) Encouragement of the use of cultured buttermilk and less emphasis on control of farms producing buttermilk until the sweet milk supply has been placed under more satisfactory supervision.

(5) The employment of one additional dairy inspector.

GENERAL SANITATION

The general sanitation program of the city bureau of health includes the enforcement of sanitary features relating to the disposal of excreta, to the collection and disposal of garbage and refuse, and to the general sanitation of public places and private premises. The personnel consists of 1 chief inspector, 6 district inspectors, and 1 clerk.

During the past few years a complete sanitary survey of the city has been made. The results have been tabulated and are now being studied in connection with various disease problems which can be attributed to insanitary conditions. A repetition of this sanitary survey is contemplated.

Water.—The public water supply is obtained from the Tennessee River. A thoroughly modern treatment plant of ample capacity was completed two years ago. The plant is well operated. The water as it is pumped into the distribution system is well within the

standards of purity established by the United States Treasury Department. At certain places along the distribution system, however, samples continue to show contamination intermittently. It is believed that cross-connections in industrial plants with other supplies of questionable character account for these bad samples. According to the findings of the sanitary survey, 96.4 per cent of dwellings are connected to the public supply. The remainder of the city is supplied with water as follows: 1.89 per cent of the population by wells; 0.69 per cent by cisterns; 1.22 per cent by springs; and 2.25 per cent have no water on the premises. Samples from these private supplies have been taken from time to time and, as might be suspected, quite frequently they reveal the presence of surface pollution. A consistent campaign is being conducted to eliminate the private supplies and force connections to the public supply.

Sewerage.—The sanitary survey recently completed reveals that 66.2 per cent of the dwellings are connected to the public sewers; 25.44 per cent have sanitary privies; and 8.14 per cent have septic tanks. Sewage is discharged into the Tennessee River untreated. There is no local nuisance, since the discharge pipes are well below the low-water mark and provision has been made for proper dispersion of the effluent. The septic tanks and privies have been installed under supervision and meet the standards specified by the bureau of health. Quite recently a $2,000,000 bond issue for the construction of sewers was passed. By the end of 1931, when the project will be completed, the public sewer will be accessible to about 90 per cent of the dwellings. There is a real estate development of about 650 homes in the Burlington subdivision around Chilhowee Park, the sewage of which discharges into the Holston River about 8 miles above the water intake. The 650 homes now being constructed represent about 40 per cent of the possible ultimate development. Some concern is expressed about the influence of this sewage on the city water supply. The water works authorities, however, consider that the plant can adequately take care of the added load.

Garbage.—The department of public service operates the garbage system, which includes the collection and disposal of garbage, refuse, and dead animals. Householders are required to have a covered metal garbage can and to separate the ashes from the trash and garbage. Garbage is burned in an incinerator and the noncombustible trash is spread on a lot adjacent to the incinerator. The entire cost of the garbage and trash collection system is borne by taxes and no fee is charged the householder. A small amount of the downtown restaurant and hotel garbage is collected by hog feeders.

Housing.—The following information was compiled as of January, 1928, by the city planning commission:

Developed areas.—The total developed area of the city was found to be 12.92 square miles, of which 3.61 square miles were streets and alleys, 0.11 square mile was parks and playgrounds, 1.48 square miles were devoted to schools, churches, cemeteries, institutions, etc., and 7.72 square miles were built up with residences, business, or industry. The total developed area is approximately 50 per cent of the total city area. It will be noticed that the space devoted to parks and playgrounds is almost negligible. Practically one-half of the city's area is vacant land.

Population.—The population of the city was estimated to be 102,000, which is 7,900 persons per square mile of developed territory.

Single-family residences.—There were 20,081 single-family dwellings housing 90,036 persons. This amounts to 88.8 per cent of the total population and 42.5 per cent of the total developed area.

Two-family residences.—There were 147 of this type of dwelling, housing 1,323 persons. This represents 1.3 per cent of the population of the city. The area occupied by duplexes was 0.24 per cent of the total developed area.

Multiple dwellings (three or more families).—There were 146 apartment houses containing a total of 1,096 apartments and housing 2,744 persons. This is equivalent to 2.68 per cent of the total population and 0.24 per cent of the total developed area.

Present uses, in per cent of built-up area.—One-family dwellings constituted 71.09 per cent; 2-family dwellings, 0.39 per cent; multiple dwellings, 0.70 per cent; retail business, 3.1 per cent; light industry, 4.82 per cent; heavy industry, 6.81 per cent; and railroad property, 13.09 per cent of the total built-up area of the city.

Building permits for each of past five years.—By consulting building permit records, figures were obtained on the number of single-family dwellings, 2-family dwellings, and apartment houses built in each of the years from 1923 to 1927, inclusive. It was found that single-family dwelling construction remained fairly constant during the period, an average of about 700 new homes being built each year. Two-family dwellings varied from year to year, the number ranging from 4 to 22. Apartment house construction showed a marked increase in 1927 over the previous years. Twenty-four permits for apartments were issued in 1927 as compared to 2 permits for the previous year.

During the sanitary survey conducted by the bureau of health, the sanitary facilities were found to be as follows:

	Percentage of dwellings supplied
Water:	
City water	96.40
Wells	1.69
Springs	1.22
Cisterns	.69
None on premises	2.25
Sewerage:	
Public sewer	66.20
Sanitary privies	22.44
Septic tanks	8.14
None on premises	3.22
Screening:	
Complete	52.44
Partial	28.15
None	19.41

A limited amount of additional information concerning construction and occupancy was collected, but these items were not tabulated.

A comprehensive zoning ordinance was enacted in January, 1930, and the building code was recently brought up to date. These ordinances are not retroactive, except when major structural changes are involved. Defects in existing structures may be corrected through condemnation but this procedure is seldom resorted to. The building inspector is charged with the enforcement of the zoning and the building ordinances. Matters pertaining to health and sanitation are handled by the bureau of health.

Miscellaneous.—The possession of livestock within the city limits is permitted under certain restrictions specified in the ordinance. Permits are issued by the bureau of health. The screening of hotels, restaurants, and boarding houses is required by city ordinance, but there is no requirement concerning private residences. The elimination or treatment of collections of water to control mosquito breeding is a function of the sanitation division of the bureau of health. Law enforcement has presented quite a problem, as it is particularly difficult to secure convictions for violations of ordinances relating to water supplies and disposal of excreta and other waste matter.

Comments.—Sanitation receives a score of 49.5 out of a possible 80 points. Twelve points are lost on water because of cross-connections and because all dwellings are not connected. Severe penalty is sustained because of the small percentage of dwellings with sewer connections. Every effort should be made to locate and eliminate cross-connections between public and private water supplies. With this done Knoxville would have a public supply which could be considered most satisfactory. Springs and wells in any built-up community are dangerous, and water-borne epidemics are always imminent so long as water from such questionable sources is used.

The city is to be congratulated upon the extension of the sewer system. The laying of these sewers, however, should be followed very promptly by the strict enforcement of the ordinance requiring connection to the public sewer. Privies and septic tanks are not considered satisfactory methods of excreta disposal in built-up sections; they should not be used if sewers can be made available. Knoxville, as well as the other cities of the State, should make provision for treating the sewage, thus conserving the purity and usefulness of the many and valuable streams of the State. Sewage from the Burlington real estate development may not be any great hazard; yet the margin of safety of the water supply would be increased if some plan could be developed whereby the sewage could be discharged below the water intake or be treated at the present outfall. It is questionable, however, if the expenditure is justified at the present time. Incineration is a very satisfactory method of garbage disposal. The provision

of the ordinance, however, which requires the separation of ashes from trash and garbage is not observed, and thus it is possible for the incinerator to consume only 60 per cent of the material brought to it. An effort is being made at the incinerator to separate the garbage from the trash and ashes, but this is not possible in many instances, thus necessitating the spreading of organic matter on a near-by lot. The material is not covered.

The advisability and necessity of making a complete second sanitary survey is questioned. It would appear much more profitable to concentrate on the defects found in the last survey with a view to instituting corrective measures, more particularly connections to the sewer. The number of sanitary inspections is in excess of the usual requirement. This can be explained, to a certain extent, on the basis of the sanitary survey. It would seem that complaints should be answered by the department responsible for the service; for example, those pertaining to garbage, refuse, and the like might well be referred to the department of public service. Any saving made thereby might well be used to increase the nursing service. A certain amount of antimosquito work is now being done, very largely for the purpose of controlling the pestiferous variety of mosquito. Occasional cases of malaria are reported by private physicians and others are reported by the General Hospital. So far as could be ascertained, no systematic malaria survey has ever been made of the city of Knoxville. Such a survey would seem desirable to ascertain the malaria problem but more particularly to determine the necessity and effectiveness of the present antimosquito program.

Recommendations.—It is recommended:

(1) That some person be assigned to make a careful check of the industries and other places in the city where cross-connections between the public and private water supplies might be found and that such cross-connections be eliminated without delay.

(2) That all springs and wells be abandoned as private water supplies and that all dwellings be forced to connect to the city supply.

(3) That all dwellings, residences, and places of business be required to connect to the public sewer system as rapidly as sewers become available.

(4) That the provisions of the present ordinance requiring the separation of ashes from trash and garbage be enforced. If this does not prove feasible, the incinerator should be enlarged. There should be better sanitary control of the garbage and refuse dumps with ample provision for covering with earth.

(5) That a malaria and mosquito survey be conducted, preferably by the malaria engineer and malariologist of the State department of health.

(6) That the law-enforcement agencies show more concern regarding violations of ordinances pertaining to sanitation and health.

LABORATORY SERVICE

The city bureau of health laboratory is housed in a building especially constructed for the purpose. The laboratory is quite well suited to the needs of the city. The scientific equipment is in good condition. The personnel consists of one director, three technicians, one secretary, and one helper. The laboratory is also used as a branch laboratory by the State health department for the examination of specimens from 16 adjoining counties. In consideration of this service the State contributes $2,500 per annum. The usual type of public health examinations are made. During the year, 19,318 specimens were examined for the city of Knoxville and 8,116 for the State of Tennessee. The laboratory also has charge of the distribution of biological products, such as sera, vaccine, and the like, for use by physicians in the city.

Comments.—The laboratory is admirably suited to the purpose. The score received is 56.8 out of a possible 60 points. The laboratory is well equipped and the technique appears to be good. The total number of specimens is well above the quota specified in the appraisal form. The number of diphtheria specimens, however, is strikingly low, and the same is true of specimens of pasteurized and raw milk.

Recommendations.—An effort should be made to secure a better distribution of specimens for examination. The number of diphtheria specimens and the number of samples of milk taken both before and after pasteurization should be increased.

POPULAR HEALTH INSTRUCTION

Popular health instruction is distributed throughout the bureau of health, with each division attending very much to its own educational work. Press releases, however, are handled very largely by the health officer. The bulletins and other printed matter are obtained for the most part from the life insurance companies, but material from the State and governmental health agencies is used to a limited extent. The bureau of health publishes an annual report in mimeographed form, but the distribution of the report is rather limited. Newspaper articles are released with very definite regularity.

Comments and recommendations.—This activity receives a score of 20.8 out of a possible 40 points. The newspaper publicity appears to be very good. Bulletins prepared by health agencies would be much more suitable than those prepared by commercial agencies, notably the life insurance companies. The annual report of the department is very good, but the complete report or a summary of it should be

given much wider local distribution. Plans should be developed whereby the various organizations would take a more active and positive part in the community health program.

PUBLIC HEALTH NURSING

The entire nursing program, with the exception of the work of four nurses employed by the industries, is performed by the bureau of health. The city holds a contract with the Metropolitan Life Insurance Co. for bedside nursing to its policy holders, for which the city was paid 82 cents per visit, or a total of $22,160 during the year. The school board pays part of the salary of five nurses, contributing a total of $7,080. The bureau of health supplements this by $1,800 for transportation purposes.

Nursing personnel and source of funds

Position	Bureau of health	Metropolitan Life Insurance Co.	School board	Total
Supervisor	1			1
Field director	1			1
Staff nurses	4	10	5	19
Total nurses	6	10	5	21
Secretary	1			1
Clerk	1			1

Since the early part of 1930 the Rosenwald Fund has contributed half the salary of one colored nurse, who devotes the major part of her time to tuberculosis work. At about the same time the local tuberculosis society started contributing to the salary of a special tuberculosis supervisor.

The nursing service is under the charge of the supervisor of nursing, who is accountable directly to the city health officer for the conduct of all nursing activities and for supplying nursing service to the several divisions. The generalized district plan of nursing is followed; that is, the city is divided into districts and one nurse performs services of all types in her particular district, including bedside nursing. A specialized supervisor of tuberculosis nursing was employed early in 1930 and the plan for the future contemplates the employment of a person especially trained to supervise nursing work relating to infancy and maternity hygiene. During 1929, 63,403 home visits were made, and of this number 32,528 were made to policyholders of the Metropolitan Life Insurance Co. It was not possible to separate visits for the purpose of giving bedside care from visits of the instructive type made solely for public health purposes. A further description and analysis of the nursing service appears in the various sections of the report in which nursing plays a part.

Comments.—There are 22 nurses, or one nurse to each 4,681 inhabitants. It has been found from experience that where a generalized nursing program is followed there should be one nurse to each 2,000 inhabitants. In other words, the present nursing personnel is scarcely 50 per cent of which it should be. On October 1, 1930, the contract with the Metropolitan Life Insurance Co. terminates and that agency will establish its own nursing service. The board of education also contemplates establishing its own nursing service when school opens in the fall. The bureau of health, in turn, plans to increase its staff nurses to eight. The future program of the bureau of health provides for concentration on the control of communicable diseases, including tuberculosis and venereal diseases and an expansion of the maternity, infancy, and preschool child hygiene work. The breaking up of the nursing service is to be regretted, particularly the establishment of a special nursing corps by the board of education. The separation of the Metropolitan Life Insurance Co. nursing service is a step taken on the part of the company. However, many of the public authorities and the local physicians feel that this arrangement will be advantageous to the bureau of health, thereby enabling it to concentrate on preventive activities and persons who are not beneficiaries of other health agencies. The nursing service, under the new arrangement, will have lost many of its contacts. Much of this ground, however, should be recovered if the proper liaison can be developed with the private physicians and with the Knoxville General Hospital whereby the bureau of health nurses can be utilized to a greater extent. Under this reorganization of the nursing service the necessity of having specialized supervisors for tuberculosis and child welfare is very seriously questioned. With such a small nursing force, namely four assured at the time of the survey and six additional in prospect, it would seem that one supervisor should be ample to meet the needs.

SPECIAL PROBLEMS

CANCER CONTROL

While the cancer death rate in Knoxville is below the experience of most cities, cancer is a principle cause of death. At the time of this survey there is no organized program in Knoxville for the control of cancer and related malignant conditions.

The city now maintains a pathological laboratory and an outpatient department in connection with the General Hospital. With very slight effort and little or no added expense it should be possible to develop the nucleus of a diagnostic cancer clinic. The bureau of health should then undertake a program of popular instruction concerning the necessity for early diagnosis and prompt treatment. A thorough study should be made of cancer deaths in order to detect any special features which might complicate the local problem.

HEART DISEASE CONTROL

At the present time there is no organized program in Knoxville for the control of heart disease. This condition is one of major importance and is being incorporated into the programs of many health departments.

The Knoxville General Hospital through its out-patient department could, without much effort or expense, organize a special clinic for cardiac patients. The problem of convalescent care will be a difficult one to solve until better facilities are established for convalescent and chronic patients; but pending the establishment of such facilities much could be done through a well-organized social service department. Much effective work in the prevention of heart disease can be done in childhood. In order to accomplish this, the child hygiene program must be expanded and the work with the school children should be made more careful and thorough.

INDUSTRIAL HYGIENE

Work in this rapidly growing field of health service has not been undertaken by either the State or the local health department. There is a State compensation law, but the allowances are rather low. The State department of labor has charge of safety and sanitation in industry. Four local industries employ nurses and the medical work is done by local practicing physicians on a part-time or call basis. The exact amount and nature of preventive industrial hygiene work in local industries was not ascertained, although it was reported to be rather inadequately developed.

The bureau of health, with its limited resources, must of necessity address its activities to the more pressing problems and those specified in ordinances. It should, however, make a survey of the industries in order to ascertain the health hazards. Following such a study some assistance might be given to the industries in the solutions of their health problems, even with the present resources of the bureau of health.

MENTAL HYGIENE

Problems resulting from mental defects and disorders present themselves in all walks of life. They are to be found in homes, in schools, in industries, in courts, and elsewhere. The more serious maladjustments lead to mental break-down or antisocial conduct. Science now has a better understanding of causative factors; consequently, with a proper health organization mental ills can be detected early, and frequently the individual can be adjusted in the community. The nucleus of a mental hygiene program is a well-organized psychiatric clinic. This clinic, as well as the whole program, should be under the direction of a trained psychiatrist.

At the present time even the most rudimentary mental hygiene work is not being performed by any health or welfare agency in Knoxville. While there is no question about the need for mental hygiene work, a psychiatric clinic or a child-guidance clinic as an isolated institution would probably be of little use until after the local program of child and family welfare has emerged from the institutional stage. A mental hygiene program should be preceded by a modern program of social case work. In any event, however, better provisions should be made for mental cases at the Knoxville General Hospital.

PELLAGRA

The death rate for pellagra is unusually high. Some fluctuation occurs from year to year, but the rate has been rising for the past 12 years. At the present time approximately 200 patients are under more or less constant supervision in the pellagra clinic at the general hospital out-patient department.

Pellagra is classed as a dietary deficiency disease and is now regarded as being due to a diet low in certain food elements. As a general rule, the incidence of the disease is determined by economic conditions. In Knoxville there does not seem to be the close correlation usually found between reported deaths and general economic conditions. There is a very definite need for a study of the local pellagra problem in order that control measures may be applied in the most economical and effective manner.

NONOFFICIAL HEALTH AGENCIES

KNOX COUNTY TUBERCULOSIS ASSOCIATION

The personnel consists of a clerk and a part-time executive secretary. The total budget is approximately $6,000, all of which is collected through the sale of Christmas seals. The major items of the program are as follows:

1. Part salary of tuberculosis supervising nurse of the city bureau of health;
2. Part salary of county nutrition work ($700);
3. Tuberculosis supplies for city and county nurses;
4. Educational material used by city and county health organizations;
5. Purchase of X-ray supplies for the city bureau of health tuberculosis clinic.

As will be seen from the budgetary arrangement, the association as such does not conduct a health program but rather assists the city and county official agencies by helping to finance certain specialized services.

KNOX COUNTY RED CROSS

The regular administrative personnel consists of one executive secretary and one clerk.

Budget (all purposes)

Community chest	$6,082.95
Roll call	4,707.05
Total	10,790.00

Major items of health program

1. Part salary of county nutrition work ($1,300);
2. First aid demonstrations;
3. Instruction in life saving;
4. Home hygiene classes and care of sick;
5. Arrangement for hospitalization of ex-service men.

The Red Cross does not employ any personnel for public health work within the city. Such activities as the teaching of home hygiene classes, first-aid demonstrations, and the like are performed by the city bureau of health nurses. The publicity and organization work is done by the Red Cross.

(The concluding parts (II and III) of this report, with the summary and recommendations, will appear in the following issue of Public Health Reports.)

COURT DECISION RELATING TO PUBLIC HEALTH

Order of State board of purification of waters sustained.—(Rhode Island Supreme Court; Board of Purification of Waters *v.* Town of Bristol, 153 A. 879; decided Mar. 18, 1931.) The State board of purification of waters, after an investigation and a public hearing, found that the pollution caused by the discharge of sewage by the town of Bristol into the waters of Bristol Harbor constituted a menace to public health. An order of the board directed the town to adopt, use, and operate properly some practicable and reasonably available system or means to prevent such pollution and to submit to the board a plan or statement describing the system or means which the town proposed to adopt. The town appealed from this order on the ground that the same was unlawful, it being claimed that the board had no authority to regulate or prohibit the discharge of sewage by the town into the public waters of the State.

By chapter 936 of the Public Laws of 1901, the town of Bristol was authorized "to convey sewerage into tidewater." By a statute enacted in 1920, the board of purification of waters was created and was given authority to regulate or prohibit the pollution of the waters of the State, including all tidewaters and the inland waters of any stream or pond. The act was operative throughout the State, except that it did not apply to the sewage discharged by the city of Newport and the town of Jamestown. By a decision of the supreme court rendered in 1926, this act was held to be a valid exercise of the police power of the State for the protection of the public health and the public welfare. By chapter 1451 of the Public Laws of 1929–30, chapter 936

of the Public Laws of 1901, relating to the town of Bristol, was amended. The purpose and effect of the amendment, as stated by the supreme court, were to validate an unauthorized appropriation for sewerage purposes previously made at a financial town meeting. The supreme court held that the 1920 act, respecting the board of purification of waters, revoked the authority previously given to the town of Bristol for the disposal of its sewage, and that such authority was not revived by the amendment of the 1901 act made by chapter 1451 of the 1929–30 laws. The order of the board was sustained.

DEATHS DURING WEEK ENDED APRIL 25, 1931

Summary of information received by telegraph from industrial insurance companies for the week ended April 25, 1931, and corresponding week of 1930. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended Apr. 25, 1931	Corresponding week, 1930
Policies in force	75, 152, 845	75, 763, 029
Number of death claims	14, 384	16, 196
Death claims per 1,000 policies in force, annual rate	10. 0	11. 1

Deaths [1] from all causes in certain large cities of the United States during the week ended April 25, 1931, infant mortality, annual death rate, and comparison with corresponding week of 1930. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

[The rates published in this summary are based upon mid-year population estimates derived from the 1930 census]

City	Week ended Apr. 25, 1931				Corresponding week, 1930		Death rate [2] for the first 17 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1931	1930
Total (81 cities)	8, 424	12. 3	724	[4] 57	13. 4	820	13. 8	13. 3
Akron	35	7. 1	1	10	5. 7	5	8. 6	8. 7
Albany [5]	38	15. 3	8	158	16. 7	2	15. 4	17. 2
Atlanta	86	16. 2	7	72	16. 9	11	16. 3	17. 1
White	41		2	32		5		
Colored	45	(6)	5	144	(6)	6	(6)	(6)
Baltimore [5]	233	14. 9	16	54	15. 2	19	17. 1	15. 7
White	170		11	48		13		
Colored	63	(6)	5	78	(6)	6	(6)	(6)
Birmingham	55	10. 6	5	50	12. 0	1	15. 6	14. 2
White	32		2	34		0		
Colored	23	(6)	3	73	(6)	1	(6)	(6)
Boston	239	15. 9	30	86	15. 8	23	16. 4	16. 2
Bridgeport	34	12. 1	3	50	14. 6	5	13. 0	13. 8
Buffalo	137	12. 3	12	49	14. 2	19	15. 1	14. 5
Cambridge	26	11. 9	2	40	17. 0	1	13. 9	14. 2
Camden	33	14. 5	4	70	20. 6	1	17. 7	15. 2
Canton	23	11. 2	4	91	10. 4	2	11. 2	11. 5
Chicago [5]	734	11. 1	54	48	12. 6	75	11. 8	11. 7
Cincinnati	155	17. 7	11	66	13. 9	8	18. 1	17. 3
Cleveland	207	11. 8	23	67	11. 5	20	12. 6	12. 4
Columbus	83	14. 6	8	78	71. 4	3	15. 1	13. 6

Footnotes at end of table.

Deaths [1] from all causes in certain large cities of the United States during the week ended April 25, 1931, infant mortality, annual death rate, and comparison with corresponding week of 1930—Continued

City	Week ended Apr. 25, 1931				Corresponding week, 1930		Death rate [2] for the first 17 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1931	1930
Dallas	52	10.0	6		10.7	2	12.6	12.5
White	38		5			2		
Colored	14	(8)	1		(8)	0	(8)	(8)
Dayton	43	10.8	4	56	10.1	3	13.6	10.7
Denver	74	13.2	5	48	11.9	9	15.7	15.7
Des Moines	22	7.9	1	18	12.8	4	12.0	12.5
Detroit	289	9.1	35	56	11.0	42	9.7	10.6
Duluth	14	7.2	1	25	10.3	1	11.7	11.5
El Paso	33	16.4	2		20.3	6	18.2	18.5
Erie	32	14.2	1	19	6.3	1	11.8	10.9
Fall River [9]	30	13.6	5	113	12.7	4	13.7	14.3
Flint	32	10.2	5	64	10.2	5	8.1	10.2
Fort Worth	47	14.6	4		8.9	3	12.3	11.8
White	36		2			2		
Colored	11	(8)	2		(8)	1	(8)	(8)
Grand Rapids	32	9.7	5	74	8.0	0	9.8	11.7
Houston	80	13.5	6		12.7	4	11.9	12.9
White	47		6			3		
Colored	33	(8)	0		(8)	1	(8)	(8)
Indianapolis	96	13.5	6	49	14.1	4	15.3	16.2
White	81		5	47		3		
Colored	15	(8)	1	67	(8)	1	(8)	(8)
Jersey City	77	12.6	9	80	13.8	7	13.6	12.9
Kansas City, Kans	28	11.9	0	0	9.4	2	15.3	12.4
White	21		0	0		2		
Colored	7	(8)	0	0	(8)	0	(8)	(8)
Kansas City, Mo	115	14.7	13	99	14.0	6	15.3	14.4
Knoxville	32	15.8	1	21	11.8	1	14.4	15.3
White	25		1	24		1		
Colored	7	(8)	0	0	(8)	0	(8)	(8)
Long Beach	28	9.6	0	0	9.4	0	11.0	10.5
Los Angeles	277	11.0	20	58	10.4	18	11.7	12.0
Louisville	81	13.7	7	60	12.9	3	17.1	14.7
White	61		6	59		1		
Colored	20	(8)	1	66	(8)	2	(8)	(8)
Lowell [7]	25	12.9	1	25	18.1	2	14.5	15.2
Lynn	11	5.6	0	0	10.7	1	11.9	12.2
Memphis	75	15.1	7	74	16.4	11	18.3	18.1
White	37		3	50		2		
Colored	38	(8)	4	116	(8)	9	(8)	(8)
Miami	27	12.5	4	101	10.8	2	14.6	13.0
White	19		2	71		1		
Colored	8	(8)	2	177	(8)	1	(8)	(8)
Milwaukee	94	8.3	9	39	10.6	16	10.5	10.8
Minneapolis	96	10.6	7	45	13.6	12	12.2	11.5
Nashville	53	17.8	3	45	14.9	5	18.4	17.8
White	36		3	60		2		
Colored	17	(8)	0	0	(8)	3	(8)	(8)
New Bedford [7]	30	13.9	6	159	16.7	1	13.4	12.5
New Haven	40	12.8	4	76	15.7	3	13.5	14.6
New Orleans	152	17.0	13	71	19.5	12	19.2	19.5
White	89		4	33		2		
Colored	63	(8)	9	147	(8)	10	(8)	(8)
New York	1,506	11.1	137	57	11.8	195	13.2	12.2
Bronx Borough	194	7.6	15	34	8.4	20	9.5	8.7
Brooklyn Borough	536	10.6	49	52	11.0	59	12.3	11.3
Manhattan Borough	570	16.4	53	90	18.0	98	20.2	18.2
Queens Borough	157	7.1	17	46	6.6	14	8.5	7.9
Richmond Borough	49	15.6	3	54	15.4	4	14.2	15.3
Newark, N. J	98	11.5	11	58	11.5	9	13.6	14.0
Oakland	66	11.8	2	26	12.0	8	11.9	12.0
Oklahoma City	37	9.8	4	55	7.5	2	12.1	10.5
Omaha	55	13.2	1	11	9.2	0	14.6	14.3
Paterson	38	14.3	2	34	13.9	5	15.8	13.5
Philadelphia	536	14.2	48	70	14.5	54	15.8	14.0
Pittsburgh	221	17.0	20	69	13.9	17	17.8	15.7
Portland, Oreg	74	12.6	1	12	13.4	5	12.7	13.7
Providence	67	13.7	9	83	9.9	7	15.1	15.3

Footnotes at end of table.

Deaths [1] from all causes in certain large cities of the United States during the week ended April 25, 1931, infant mortality, annual death rate, and comparison with corresponding week of 1930—Continued

City	Week ended Apr. 25, 1931				Corresponding week, 1930		Death rate [2] for the first 17 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1931	1930
Richmond	55	15.6	8	117	15.9	8	17.9	16.4
White	34		4	88		2		
Colored	21	(*)	4	174	(*)	6	(*)	(*)
Rochester	77	12.1	6	55	11.7	4	13.8	13.2
St. Louis	274	17.3	20	67	15.5	24	18.0	15.2
St. Paul	63	11.9	1	10	11.1	6	11.7	11.2
Salt Lake City [4]	36	13.1	1	15	14.1	6	13.3	14.3
San Antonio	88	19.1	16		17.7	16	15.4	18.4
San Diego	29	9.7	1	20	13.6	4	15.1	15.5
San Francisco	140	11.2	5	33	14.7	6	14.4	13.9
Schenectady	18	9.8	3	88	12.0	3	11.8	12.2
Seattle	78	10.9	5	47	12.5	2	13.0	12.0
Somerville	18	8.9	1	37	16.0	4	11.0	12.4
South Bend	22	10.6	2	50	7.5	1	9.3	9.9
Spokane	25	11.2	1	26	9.9	3	13.4	13.5
Springfield, Mass	27	9.2	2	31	13.9	5	13.0	14.8
Syracuse	59	14.4	2	24	13.4	5	13.0	13.0
Tacoma	25	12.1	2	51	12.2	0	15.0	13.5
Toledo	71	12.5	3	28	14.8	5	13.6	14.3
Trenton	36	15.2	2	35	16.9	6	19.6	17.8
Utica	23	11.7	0	0	25.1	4	16.4	17.4
Washington, D. C	156	16.5	14	78	16.8	9	18.2	16.3
White	87		3	25		5		
Colored	69	(*)	11	189	(*)	4	(*)	(*)
Waterbury	19	9.8	2	60	8.3	2	11.2	10.8
Wilmington, Del. [5]	30	14.7	5	108	18.6	4	16.7	16.1
Worcester	63	16.7	5	69	12.5	2	15.2	15.5
Yonkers	22	8.3	3	79	11.5	2	10.0	9.4
Youngstown	37	11.2	1	14	10.7	2	11.6	11.0

[1] Deaths of nonresidents are included. Stillbirths are excluded.

[2] These rates represent annual rates per 1,000 population, as estimated for 1931 and 1930 by the arithmetical method.

[3] Deaths under 1 year of age per 1,000 live births. Cities left blank are not in the registration area for births.

[4] Data for 76 cities.

[5] Deaths for week ended Friday.

[6] For the cities for which deaths are shown by color, the percentage of colored population in 1920 was as follows: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Miami, 31; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

[7] Population Apr. 1, 1930; decreased 1920 to 1930, no estimate made.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended May 2, 1931, and May 3, 1930

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 2, 1931, and May 3, 1930

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 2, 1931	Week ended May 3, 1930	Week ended May 2, 1931	Week ended May 3, 1930	Week ended May 2, 1931	Week ended May 3, 1930	Week ended May 2, 1931	Week ended May 3, 1930
New England States:								
Maine	4	1	5	2	83	110	1	0
New Hampshire	2	1	1		33	9	0	0
Vermont						49	0	0
Massachusetts	38	73	4	6	555	1,518	2	4
Rhode Island	3	7			32	7	0	0
Connecticut	7	6	3	1	466	43	1	4
Middle Atlantic States:								
New York	110	113	[1] 11	[1] 37	2,702	2,417	8	22
New Jersey	37	103	17	7	905	1,530	4	3
Pennsylvania	116	103			4,378	1,418	10	7
East North Central States:								
Ohio	68	22	77	13	1,154	900	13	5
Indiana	12	12	4		818	144	8	11
Illinois	135	159	10	10	1,680	626	21	10
Michigan	59	50	4		99	2,029	8	29
Wisconsin	11	18	29	16	677	697	1	4
West North Central States:								
Minnesota	14	30	4	1	165	209	2	2
Iowa	3	11			69	358	3	4
Missouri	29	35	1	1	429	147	8	10
North Dakota	7	3			84	26	3	5
South Dakota	3	3	2		57	61	0	0
Nebraska	7	15	5		30	826	3	2
Kansas	8	3	3	1	89	801	1	5
South Atlantic States:								
Delaware	1				205	18	0	0
Maryland [2]	14	16	12	25	1,361	79	2	4
District of Columbia	20	12	2		307	25	5	0
West Virginia	8	8	28	28	65	153	0	1
North Carolina	19	14	24	13	641	45	4	7
South Carolina	20	10	543	457	115		5	0
Georgia	5	7	115	15	166	260	2	0
Florida	3	5	6	1	176	220	5	0
East South Central States:								
Kentucky					248	175	4	0
Tennessee	3	4	85	24	108	236	2	5
Alabama	6	4	101	85	308	108	8	1
Mississippi	4	9					2	5

[1] New York City only.

[2] Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 2, 1931, and May 3, 1930—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 2, 1931	Week ended May 3, 1930	Week ended May 2, 1931	Week ended May 3, 1930	Week ended May 2, 1931	Week ended May 3, 1930	Week ended May 2, 1931	Week ended May 3, 1930
West South Central States:								
Arkansas	3	4	92	11	56	119	1	2
Louisiana	16	19	13	6	3	72	1	3
Oklahoma [3]	13	8	73	21	24	285	0	3
Texas [4]	24	18	47	9	73	230	3	1
Mountain States:								
Montana	2	2			7	3	0	2
Idaho	1	3	6		1	2	1	5
Wyoming	1	1			2	19	2	0
Colorado	1	8			171	826	0	2
New Mexico	4	6	2	1	38	42	1	5
Arizona	1		2	2	12	175	0	3
Utah [3]		6	5	3	1	252	0	6
Pacific States:								
Washington	4	7	33	35	118	547	2	7
Oregon	5	3	29	10	104	100	0	0
California	80	43	88	15	1,297	2,053	8	4

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 2, 1931	Week ended May 3, 1930	Week ended May 2, 1931	Week ended May 3, 1930	Week ended May 2, 1931	Week ended May 3, 1930	Week ended May 2, 1931	Week ended May 3, 1930
New England States:								
Maine	0	0	20	45	0	0	5	1
New Hampshire	0	0	1	24	0	0	0	0
Vermont	0	0	2	2	0	0	0	0
Massachusetts	0	1	340	235	0	0	4	1
Rhode Island	0	0	56	27	0	0	3	0
Connecticut	0	0	59	65	0	0	1	2
Middle Atlantic States:								
New York	1	2	863	556	3	19	14	12
New Jersey	1	0	293	224	0	0	1	0
Pennsylvania	0	2	652	403	0	1	13	8
East North Central States:								
Ohio	1	0	646	284	90	197	7	12
Indiana	0	0	205	166	72	164	1	3
Illinois	1	0	513	505	79	148	4	8
Michigan	1	2	544	273	12	65	7	7
Wisconsin	1	0	187	175	0	15	3	3
West North Central States:								
Minnesota	0	0	68	141	12	2	2	2
Iowa	0	0	81	57	66	93	0	0
Missouri	0	0	317	55	39	33	2	7
North Dakota	0	0	44	12	2	16	0	0
South Dakota	3	0	21	17	11	68	0	0
Nebraska	0	0	58	95	66	85	2	1
Kansas	0	0	62	106	118	49	3	4
South Atlantic States:								
Delaware	0	1	32	4	0	0	1	0
Maryland [3]	0	0	74	108	0	0	5	1
District of Columbia	0	0	17	23	0	0	0	0
West Virginia	3	1	31	39	3	39	9	13
North Carolina	1	0	44	40	1	15	3	1
South Carolina	1	2	4	7	0	0	5	8
Georgia	0	0	51	4	0	0	11	8
Florida	0	0	4	7	1	0	7	1
East South Central States:								
Kentucky	1	0	103	54	5	7	2	5
Tennessee	2	1	12	39	7	7	1	5
Alabama	0	0	19	8	27	6	7	6
Mississippi	0	0	13	8	54	11	6	5
West South Central States:								
Arkansas	0	0	23	1	7	4	6	3
Louisiana	0	1	30	18	39	7	12	11
Oklahoma [3]	0	0	34	40	75	92	2	4
Texas [4]	0	0	34	26	84	40	17	6

[3] Week ended Friday.
[4] Figures for 1931 are exclusive of Oklahoma City and Tulsa.
[4] Typhus fever, 1931, 1 case in Texas.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 2, 1931, and May 3, 1930—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 2, 1931	Week ended May 3, 1930	Week ended May 2, 1931	Week ended May 3, 1930	Week ended May 2, 1931	Week ended May 3, 1930	Week ended May 2, 1931	Week ended May 3, 1930
Mountain States:								
Montana	0	0	15	31	3	8	0	0
Idaho	0	0	7	7	3	5	0	1
Wyoming	0	0	12	3	2	11	0	0
Colorado	0	0	30	28	3	21	2	4
New Mexico	0	0	7	10	0	3	0	5
Arizona	0	1	2	17	1	17	4	1
Utah [1]	0	0	9	12	0	0	0	0
Pacific States:								
Washington	1	0	35	24	43	64	2	3
Oregon	0	0	12	11	31	31	1	4
California	4	4	158	133	45	50	14	13

[1] Week ended Friday.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
February, 1931										
Arkansas	5	38	756	48	25	154	3	82	91	19
Hawaii Territory	1	26	9		258		2	2	0	4
March, 1931										
Alabama	54	86	2,280	47	2,000	44	2	113	56	14
Georgia	7	29	3,201	117	546	51	1	337	3	27
Idaho	10	13	78		57		1	121	31	20
Illinois	58	518	445	9	7,163	1	6	2,415	169	14
Iowa	10	25			82		2	492	335	4
Kansas	10	57	126	5	118		4	279	487	1
Mississippi	6	60	7,121	1,234	326	832	1	110	177	15
Montana	3	14	129		43		0	106	19	6
Nevada	1	1	44		263		0	1	0	0
New Mexico	5	20	81	4	289		1	43	16	3
Oklahoma [1]	10	40	582	44	102	54	0	133	260	12
Oregon	1	18	803		331		1	93	112	7
South Dakota	2	43	15		330		2	94	112	6
Texas	4	149	511	315		5	5	142		15
Virginia	10	110	5,959	16	3,358	47	0	205	10	8
Washington	7	35	313		219			221	165	13

[1] Exclusive of Oklahoma City and Tulsa.

February, 1931	Cases
Chicken pox:	
Arkansas	167
Hawaii Territory	26
Conjunctivitis:	
Hawaii Territory	22
Hookworm:	
Hawaii Territory	12
Impetigo contagiosa:	
Hawaii Territory	1
Leprosy:	
Hawaii Territory	4
Mumps:	
Arkansas	29
Hawaii Territory	57
Tetanus:	
Hawaii Territory	2
Trachoma:	
Arkansas	1
Hawaii Territory	44
Tularaemia:	
Arkansas	1
Whooping cough:	
Arkansas	100

March, 1931	Cases
Chicken pox:	
Alabama	248
Georgia	186
Idaho	87
Illinois	1,563
Iowa	471
Kansas	686
Mississippi	1,090
Montana	126
Nevada	20
New Mexico	113
Oklahoma [1]	82
Oregon	297
South Dakota	201
Virginia	840
Washington	575
Conjunctivitis:	
Georgia	8
New Mexico	1
Dengue:	
Mississippi	4
Diarrhea and dysentery:	
Virginia	125
Dysentery:	
Georgia	32
Illinois	12
Mississippi (amebic)	42
Oklahoma [1]	4
German measles:	
Illinois	93
Iowa	23
Kansas	6
New Mexico	4
Washington	145
Hookworm disease:	
Georgia	19
Mississippi	215
Impetigo contagiosa:	
Iowa	1
Oregon	12
Washington	2
Lead poisoning:	
Illinois	5
Lethargic encephalitis:	
Alabama	5
Illinois	5
Kansas	1
New Mexico	1
Oregon	1
Washington	1
Mumps:	
Alabama	353
Georgia	178
Idaho	83
Illinois	1,497
Iowa	158
Kansas	522
Mississippi	510
Montana	196
Nevada	7
New Mexico	95
Oklahoma [1]	23
Oregon	276
South Dakota	11
Washington	246

[1] Exclusive of Oklahoma City and Tulsa.

Ophthalmia neonatorum:	Cases
Illinois	15
Kansas	1
Oklahoma [1]	1
Paratyphoid fever:	
Illinois	1
Kansas	1
Oregon	1
Psittacosis:	
Georgia	1
Ptomaine poisoning:	
Kansas	17
Puerperal septicemia:	
Illinois	5
Mississippi	35
Rabies in animals:	
Mississippi	5
Rocky Mountain spotted or tick fever:	
Idaho	4
Montana	4
Nevada	1
Oregon	4
Scabies:	
Kansas	4
Oregon	1
Washington	5
Septic sore throat:	
Georgia	46
Illinois	8
Iowa	2
Kansas	3
Montana	5
New Mexico	4
Oklahoma [1]	34
Oregon	2
South Dakota	1
Tetanus:	
Georgia	1
Illinois	2
Trachoma:	
Illinois	7
Mississippi	12
Montana	128
New Mexico	3
Oklahoma [1]	2
South Dakota	3
Tularaemia:	
Alabama	1
Illinois	7
Virginia	1
Typhus fever:	
Alabama	1
Georgia	1
Undulant fever:	
Illinois	15
Iowa	2
Kansas	1
Washington	2
Vincent's angina:	
Illinois	2
Kansas	6
New Mexico	3
Oklahoma [1]	3
Oregon	12

Whooping cough:	Cases
Alabama	77
Georgia	131
Idaho	179
Illinois	657
Iowa	85
Kansas	122
Mississippi	391
Montana	173

Whooping cough—Continued.	Cases
Nevada	2
New Mexico	32
Oklahoma [1]	61
Oregon	50
South Dakota	41
Virginia	519
Washington	260

[1] Exclusive of Oklahoma City and Tulsa.

Cases of Certain Communicable Diseases Reported for the Month of January, 1931, by State Health Officers

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid and paratyphoid fever	Whooping cough
Maine	396	16	112	380	106	0	46	12	503
New Hampshire		10			23			3	
Vermont	240	9	107	68	33	17	[1] 17	1	93
Massachusetts	1,897	337	2,483	453	1,413	6	533	16	805
Rhode Island	97	28	2	33	225	0	53	1	44
Connecticut	577	55	1,044	380	265	0	135	2	279
New York	3,212	553	1,461	1,222	2,880	29	1,627	40	2,095
New Jersey	1,935	281	1,715	154	1,064	0	471	10	699
Pennsylvania	5,391	684	4,887	1,400	2,604	5	521	59	822
Ohio	2,849	292	867	962	2,345	388	618	43	413
Indiana	676	257	1,253	61	1,559	495	331	7	236
Illinois	1,785	665	3,032	1,433	2,126	211	1,041	23	578
Michigan	1,862	219	582	381	1,365	226	555	19	810
Wisconsin	2,452	114	1,208	2,000	695	34	160	10	667
Minnesota	675	62	133		288	44	228	12	147
Iowa	324	46	16	60	541	216	46	2	75
Missouri	583	272	6,002	89	987	190	197	26	114
North Dakota	169	23	21	60	145	44	16	4	73
South Dakota	129	80	32	49	83	202	2	6	35
Nebraska	340	39	84	278	230	288	[1] 27	6	129
Kansas	804	76	141	199	260	507	129	9	126
Delaware	39	17	22	11	135	0	27	0	25
Maryland	1,040	112	879	147	407	0	191	16	145
District of Columbia	187	51	85		140	0	75	5	40
Virginia	803	184	1,031		369	6	257	28	424
West Virginia	276	74	152		227	65	61	33	209
North Carolina	1,031	169	526		326	11		16	374
South Carolina	306	230	97	113	82	4	134	29	149
Georgia	180	71	382	116	246	15	113	19	112
Florida	154	44	228	2	40	6	23	5	29
Kentucky [2]									
Tennessee	456	105	712	133	428	43	197	40	108
Alabama	458	195	1,945	150	293	14	343	33	57
Mississippi	905	89	116	629	122	77	165	21	517
Arkansas	121	36	17	34	77	91	[1] 24	22	11
Louisiana	50	142	10	11	104	38	[1] 130	24	75
Oklahoma [3]	169	160	172	27	204	453	54	35	24
Texas		195			248			36	
Montana	165	19	18	138	243	27	36	6	199
Idaho		24			89			12	
Wyoming	183	2	4	89	106	3		0	68
Colorado	444	36	344	163	201	60	76	7	153
New Mexico	83	21	202	77	38	8	47	8	29
Arizona	57	34	379	26	28	15	160	4	15
Utah [2]									
Nevada	2	4	3		6		[1] 6		10
Washington	613	71	332	271	239	141	102	11	234
Oregon	247	26	380	344	95	99	50	4	40
California	2,224	267	1,840	1,097	567	453	938	41	687

[1] Pulmonary. [2] Reports received weekly. [3] Exclusive of Oklahoma City and Tulsa.

Case Rates per 100,000 Population (Annual Basis) for the Month of January, 1931

State	Chickenpox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid and paratyphoid fever	Whooping cough
Maine	582	24	165	559	156	0	68	18	739
New Hampshire		25			58	0		8	
Vermont	784	29	349	222	108	0	[1] 56	3	304
Massachusetts	520	92	680	124	387	2	146	4	221
Rhode Island	164	47	3	56	380	0	89	2	74
Connecticut	416	40	752	274	191	0	97	1	201
New York	294	51	134	112	261	3	149	4	192
New Jersey	549	80	487	44	302	0	134	3	198
Pennsylvania	652	83	591	109	315	1	63	7	99
Ohio	497	51	151	168	409	68	108	7	72
Indiana	243	92	450	22	560	178	119	3	85
Illinois	270	101	459	217	322	32	158	3	88
Michigan	440	52	137	90	322	53	131	4	191
Wisconsin	970	45	478	791	275	13	63	4	264
Minnesota	307	28	61		131	20	104	5	67
Iowa	154	22	8	28	257	103	22	1	36
Missouri	188	88	1,933	29	318	61	63	8	37
North Dakota	290	40	36	103	249	76	28	7	125
South Dakota	217	135	54	82	140	340	3	10	50
Nebraska	288	33	71	236	195	244	[1] 23	5	109
Kansas	500	47	88	124	162	315	80	6	78
Delaware	191	83	108	54	662	0	132	0	123
Maryland	740	80	626	105	290	0	136	11	103
District of Columbia	447	122	203		334	0	179	12	96
Virginia	388	89	498		178	3	124	14	205
West Virginia	184	49	102		152	43	41	22	140
North Carolina	374	61	191		118	4		6	136
South Carolina	206	155	65	76	55	3	90	20	101
Georgia	73	29	155	47	100	6	46	8	45
Florida	119	34	176	2	31	5	18	4	22
Kentucky [2]									
Tennessee	203	47	316	59	190	19	88	18	48
Alabama	201	86	854	66	129	6	151	14	25
Mississippi	523	51	67	364	71	45	95	12	299
Arkansas	76	23	11	21	49	57	[1] 15	14	7
Louisiana	28	78	6	6	57	21	[1] 72	13	41
Oklahoma [2]	95	90	97	15	115	256	30	20	13
Texas		33			49			7	
Montana	361	42	39	302	532	59	79	13	436
Idaho		63			235			32	
Wyoming	939	10	21	457	544	15		0	349
Colorado	499	40	387	183	226	67	85	8	172
New Mexico	227	57	552	210	104	22	128	22	79
Arizona	150	89	996	68	74	39	421	11	39
Utah [2]									
Nevada	25	51	38		76	0	[1] 76		127
Washington	454	53	246	201	177	105	76	8	173
Oregon	298	31	459	416	115	120	60	5	48
California	440	53	364	217	112	90	186	8	136

[1] Pulmonary. [2] Reports received weekly. [3] Exclusive of Oklahoma City and Tulsa.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 98 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 33,480,000. The estimated population of the 91 cities reporting deaths is more than 31,935,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended April 25, 1931, and April 26, 1930

	1931	1930	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	790	1,138	
98 cities	343	573	757
Measles:			
45 States	20,714	19,567	
98 cities	8,616	8,554	
Meningococcus meningitis:			
46 States	152	223	
98 cities	78	137	
Poliomyelitis:			
46 States	20	13	
Scarlet fever:			
46 States	5,488	4,321	
98 cities	2,603	1,654	1,375
Smallpox:			
46 States	997	1,596	
98 cities	133	188	65
Typhoid fever:			
46 States	137	213	
98 cities	19	39	31
Deaths reported			
Influenza and pneumonia:			
91 cities	919	915	
Smallpox:			
91 cities	1	0	
Memphis, Tenn.	1	0	

City reports for week ended April 25, 1931

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1922 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	1	0	0		0	0	5	0
New Hampshire:								
Concord	0	0	0		0	14	0	0
Manchester	0	0	0		0	0	0	2
Vermont:								
Barre	0	0	0		0	0	0	1
Burlington	0	0	0		0	1	0	0
Massachusetts:								
Boston	50	30	8	2	0	89	10	30
Fall River	1	2	4		0	6	4	0
Springfield	7	2	0		0	12	17	3
Worcester	23	4	2		0	4	18	1
Rhode Island:								
Pawtucket	2	2	0		0	0	0	1
Providence	8	7	8	1	1	32	12	6
Connecticut:								
Bridgeport	2	4	1	3	1	8	8	1
Hartford	5	4	1		0	30	2	8
New Haven	35	1	0	1	1	340	7	4

City reports for week ended April 25, 1931—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC								
New York:								
Buffalo	22	9	9	----	2	259	61	16
New York	377	223	68	21	9	1,358	0	208
Rochester	14	4	3	----	0	30	31	8
Syracuse	16	2	0	----	2	8	1	4
New Jersey:								
Camden	3	6	3	----	0	12	10	4
Newark	146	14	8	1	1	27	19	8
Trenton	4	3	1	----	0	8	7	2
Pennsylvania:								
Philadelphia	134	59	11	12	8	1,321	50	55
Pittsburgh	66	14	0	4	4	115	60	62
Reading	3	0	0	----	0	34	12	2
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	11	6	2	----	2	112	15	13
Cleveland	194	22	11	25	3	67	370	21
Columbus	17	3	1	1	0	6	1	4
Toledo	45	3	3	2	0	8	27	3
Indiana:								
Fort Wayne	2	2	3	----	0	17	0	4
Indianapolis	29	3	4	----	0	570	10	12
South Bend	2	1	0	----	0	4	0	0
Terre Haute	2	0	0	----	0	4	0	3
Illinois:								
Chicago	171	86	45	3	3	627	102	63
Springfield	7	1	0	1	0	115	10	1
Michigan:								
Detroit	115	41	23	4	1	22	60	25
Flint	13	2	1	----	1	0	9	3
Grand Rapids	3	2	0	----	0	21	1	3
Wisconsin:								
Kenosha	4	0	2	----	0	1	121	0
Madison	21	0	1	----	----	4	58	----
Milwaukee	112	10	3	----	0	192	501	10
Racine	3	2	0	----	0	11	6	0
Superior	8	0	0	----	0	0	1	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	7	0	0	----	0	0	0	0
Minneapolis	62	11	5	----	1	91	154	11
St. Paul	49	7	0	1	1	10	5	8
Iowa:								
Davenport	0	0	2	----	----	0	0	----
Des Moines	2	0	2	----	----	0	2	----
Sioux City	32	0	1	----	----	5	17	----
Waterloo	2	0	1	----	----	0	0	----
Missouri:								
Kansas City	17	3	5	----	0	259	2	16
St. Joseph	1	0	0	----	1	20	0	13
St. Louis	32	32	20	1	1	45	26	16
North Dakota:								
Fargo	2	0	0	----	0	2	7	1
Grand Forks	0	0	0	----	----	0	2	----
South Dakota:								
Aberdeen	3	0	0	----	----	9	0	----
Nebraska:								
Omaha	16	2	2	----	0	1	25	7
Kansas:								
Topeka	9	1	1	3	2	0	24	3
Wichita	4	1	0	----	0	1	1	3
SOUTH ATLANTIC								
Delaware:								
Wilmington	2	2	2	----	0	81	4	3
Maryland:								
Baltimore	74	22	10	2	1	1,075	39	32
Cumberland	0	0	0	----	0	0	0	2
Frederick	0	0	0	----	0	8	0	0

City reports for week ended April 25, 1931—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—con.								
District of Columbia:								
Washington	0	12	8	2	1	287	0	11
Virginia:								
Lynchburg	16	1	0	----	0	6	3	1
Richmond	2	1	1	----	0	320	0	3
Roanoke	1	0	0	----	0	12	0	3
West Virginia:								
Charleston	0	0	0	2	1	0	1	2
Wheeling	13	1	0	----	0	0	0	2
North Carolina:								
Raleigh	3	0	0	----	0	38	0	2
Wilmington	0	0	0	----	0	1	0	1
Winston-Salem	9	0	2	----	1	59	17	1
South Carolina:								
Charleston	1	0	0	30	0	1	0	4
Columbia	1	0	0	----	0	6	6	3
Greenville	0	1	0	----	0	0	0	0
Georgia:								
Atlanta	7	2	2	7	1	0	0	5
Brunswick	0	0	0	----	0	0	5	2
Savannah	3	0	0	27	0	13	15	5
Florida:								
Miami	8	2	0	----	1	10	1	3
Tampa	4	1	1	----	0	143	5	3
EAST SOUTH CENTRAL								
Kentucky:								
Covington	1	1	2	----	0	27	0	2
Tennessee:								
Memphis	25	2	1	----	2	160	4	5
Nashville	0	0	0	----	3	84	0	4
Alabama:								
Birmingham	8	0	0	4	1	4	2	8
Mobile	0	0	1	4	1	0	0	1
Montgomery	6	0	0	----	----	0	0	----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	5	0	0	----	----	3	0	----
Little Rock	6	1	0	----	3	0	1	2
Louisiana:								
New Orleans	6	9	13	3	2	0	0	9
Shreveport	5	0	0	----	0	1	8	3
Oklahoma:								
Muskogee	33	0	0	5	0	0	0	0
Oklahoma City	2	1	1	----	1	2	0	6
Texas:								
Dallas	46	4	5	3	4	2	31	5
Fort Worth	14	1	1	----	1	0	0	9
Galveston	0	0	0	----	0	3	0	1
Houston	2	4	3	----	1	6	1	11
San Antonio	1	3	0	----	6	26	3	11
MOUNTAIN								
Montana:								
Billings	1	0	0	----	0	0	0	0
Great Falls	13	0	0	----	0	0	0	1
Helena	0	0	0	----	0	0	0	0
Missoula	26	0	0	----	0	0	0	0
Idaho:								
Boise	0	0	0	----	0	2	1	0
Colorado:								
Denver	30	8	2	----	2	26	29	5
Pueblo	0	1	0	----	0	46	0	1
New Mexico:								
Albuquerque	9	0	0	----	0	2	0	1
Arizona:								
Phoenix	0	0	0	----	0	0	0	1
Utah:								
Salt Lake City	8	3	1	----	0	2	3	4
Nevada:								
Reno	0	0	0	----	0	0	0	1

City reports for week ended April 25, 1931—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
PACIFIC								
Washington:								
Seattle	35	2	1	----	----	7	28	----
Spokane	3	3	0	----	----	4	0	----
Tacoma	6	2	1	----	0	1	5	4
Oregon:								
Portland	19	7	0	11	0	38	29	4
Salem	0	0	0	----	0	9	8	0
California:								
Los Angeles	81	29	26	32	0	188	8	7
Sacramento	10	2	1	2	2	20	1	3
San Francisco	36	13	3	12	0	44	3	5

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	* 4	12	0	0	0	1	1	0	0	7	28
New Hampshire:											
Concord	0	0	0	0	0	1	0	0	0	0	13
Manchester	1	1	0	0	0	0	0	0	0	0	17
Vermont:											
Barre	0	1	0	0	0	2	0	0	0	1	9
Burlington	1	0	1	0	0	0	0	0	0	0	11
Massachusetts:											
Boston	81	107	0	0	0	11	1	0	0	25	239
Fall River	4	11	0	0	0	0	0	1	0	4	30
Springfield	10	20	0	0	0	2	0	0	0	6	31
Worcester	7	21	0	0	0	1	0	0	0	9	63
Rhode Island:											
Pawtucket	1	20	0	0	0	0	0	0	0	0	22
Providence	12	36	0	0	0	2	0	0	0	12	67
Connecticut:											
Bridgeport	10	4	0	0	0	2	0	0	0	1	34
Hartford	4	6	0	0	0	4	0	0	0	2	42
New Haven	7	1	0	0	0	2	0	0	0	2	40
MIDDLE ATLANTIC											
New York:											
Buffalo	26	28	0	2	0	7	0	1	0	34	136
New York	305	592	0	0	0	98	8	4	0	188	1,506
Rochester	11	70	0	0	0	1	0	0	0	20	78
Syracuse	12	34	0	0	0	0	0	0	0	17	59
New Jersey:											
Camden	5	8	0	0	0	0	0	0	0	0	33
Newark	31	72	0	0	0	7	1	0	0	53	102
Trenton	4	7	0	0	0	5	0	1	0	0	36
Pennsylvania:											
Philadelphia	99	216	0	0	0	38	3	1	0	37	536
Pittsburgh	28	63	0	0	0	9	1	1	0	37	221
Reading	5	1	0	0	0	3	0	0	0	0	43
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	19	30	2	0	0	9	0	1	0	8	155
Cleveland	36	89	0	0	0	14	0	0	0	11	207
Columbus	9	18	0	0	0	6	0	1	0	1	83
Toledo	13	4	0	0	0	10	0	0	0	18	72

City reports for week ended April 25, 1931—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
EAST NORTH CENTRAL—contd.											
Indiana:											
Fort Wayne	4	0	1	8	0	1	0	0	0	2	25
Indianapolis	9	34	6	19	0	0	0	0	3	38	----
South Bend	5	1	0	2	0	1	0	0	0	12	23
Terre Haute	2	2	0	0	0	2	0	0	0	0	19
Illinois:											
Chicago	118	289	2	3	0	46	1	1	0	61	734
Springfield	3	5	0	0	0	2	1	0	0	0	20
Michigan:											
Detroit	111	173	1	0	0	19	1	0	0	81	289
Flint	10	10	2	0	0	3	0	0	0	5	32
Grand Rapids	11	16	1	1	0	0	0	0	1	15	32
Wisconsin:											
Kenosha	2	5	1	0	0	0	0	0	0	0	2
Madison	3	1	0	0	----	----	0	0	----	3	----
Milwaukee	27	31	0	0	0	9	0	0	0	29	94
Racine	4	8	0	0	0	2	0	0	0	11	19
Superior	3	0	0	0	0	0	0	0	0	2	8
WEST NORTH CENTRAL											
Minnesota:											
Duluth	7	0	0	0	0	1	0	0	0	4	14
Minneapolis	33	14	0	0	0	1	0	0	0	30	96
St. Paul	27	11	0	0	0	2	1	0	0	18	65
Iowa:											
Davenport	2	1	1	7	----	----	0	0	----	0	----
Des Moines	9	7	1	13	----	----	0	0	----	0	22
Sioux City	2	16	1	[1]1	----	----	0	0	----	6	----
Waterloo	1	0	0	0	----	----	0	0	----	4	----
Missouri:											
Kansas City	21	13	1	1	0	3	0	0	0	11	115
St. Joseph	3	8	0	0	0	3	0	0	0	0	39
St. Louis	33	170	2	2	0	21	2	1	0	10	274
North Dakota:											
Fargo	3	1	1	0	0	0	0	0	0	1	5
Grand Forks	1	1	0	0	----	----	0	0	----	0	----
South Dakota:											
Aberdeen	1	1	0	1	----	----	0	0	----	1	----
Nebraska:											
Omaha	3	7	4	8	0	3	0	0	0	7	85
Kansas:											
Topeka	3	2	1	0	0	0	0	0	0	1	26
Wichita	3	3	2	25	0	1	0	1	0	2	29
SOUTH ATLANTIC											
Delaware:											
Wilmington	5	11	0	0	0	0	0	0	0	0	30
Maryland:											
Baltimore	37	40	0	0	0	17	2	0	0	23	233
Cumberland	1	0	0	0	0	0	0	0	0	0	14
Frederick	0	2	0	0	0	0	0	0	0	0	4
District of Col.:											
Washington	24	28	0	0	0	10	1	0	0	5	156
Virginia:											
Lynchburg	1	0	0	0	0	2	0	0	0	0	13
Richmond	3	7	0	0	0	0	0	0	0	0	52
Roanoke	1	0	0	0	0	1	0	0	0	0	16
West Virginia:											
Charleston	0	0	0	1	0	0	0	0	0	2	15
Wheeling	2	1	0	0	0	0	0	0	0	2	17
North Carolina:											
Raleigh	0	0	0	0	0	1	0	0	0	31	18
Wilmington	0	0	0	0	0	0	0	0	0	10	13
Winston-Salem	1	1	1	0	0	3	0	0	0	6	17
South Carolina:											
Charleston	0	1	1	0	0	1	0	0	0	0	31
Columbia	0	0	1	0	0	2	0	0	0	0	15
Greenville	0	0	1	0	0	0	0	0	0	1	----

[1] Nonresident.

City reports for week ended April 25, 1931—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
SOUTH ATLANTIC—continued											
Georgia:											
Atlanta	4	62	2	2	0	3	0	0	0	2	86
Brunswick	0	0	0	0	0	0	0	0	0	0	5
Savannah	0	0	1	0	0	0	0	1	0	0	30
Florida:											
Miami	2	2	0	0	0	1	1	0	0	3	27
Tampa	0	1	0	0	0	3	0	0	0	3	21
EAST SOUTH CENTRAL											
Kentucky:											
Covington	3	9	0	0	0	0	0	0	0	0	11
Tennessee:											
Memphis	7	48	0	6	1	7	0	0	0	11	75
Nashville	1	9	0	0	0	1	0	0	0	4	53
Alabama:											
Birmingham	2	2	1	0	0	4	0	1	1	3	55
Mobile	0	0	1	0	0	3	0	0	0	0	21
Montgomery	0	0	1	0	----	----	0	0	----	0	----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	1	0	0	----	----	0	0	----	18	----
Little Rock	0	2	0	0	0	3	0	0	0	1	10
Louisiana:											
New Orleans	10	17	0	24	0	14	3	0	0	8	152
Shreveport	1	1	0	0	0	0	0	0	0	2	28
Oklahoma:											
Muskogee	1	1	2	0	0	0	0	2	0	0	----
Oklahoma City	2	3	3	8	0	4	0	0	0	0	37
Texas:											
Dallas	4	6	2	2	0	1	1	0	0	9	52
Fort Worth	2	2	4	7	0	4	0	1	0	0	47
Galveston	1	0	0	0	0	2	0	0	0	0	16
Houston	1	1	2	3	0	4	0	0	0	0	80
San Antonio	1	1	1	0	0	16	0	0	0	1	88
MOUNTAIN											
Montana:											
Billings	1	2	0	0	0	0	0	0	0	1	4
Great Falls	1	0	0	0	0	0	0	0	0	17	6
Helena	0	0	0	1	0	0	0	0	0	0	4
Missoula	1	0	1	0	0	0	0	0	0	0	6
Idaho:											
Boise	2	0	0	0	0	0	0	0	0	3	6
Colorado:											
Denver	11	17	0	1	0	9	0	0	0	33	77
Pueblo	1	0	0	0	0	0	0	0	0	7	9
New Mexico:											
Albuquerque	1	0	0	0	0	4	0	1	0	0	8
Arizona:											
Phoenix	1	1	0	0	0	3	0	0	0	0	----
Utah:											
Salt Lake City	2	3	1	0	0	2	1	1	0	36	36
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle	7	6	3	1	----	----	1	0	----	84	----
Spokane	5	1	7	11	----	----	0	0	----	2	----
Tacoma	2	1	3	0	0	1	0	0	0	5	25
Oregon:											
Portland	3	1	9	5	0	1	0	0	0	1	74
Salem	0	0	1	1	0	0	0	0	0	0	----
California:											
Los Angeles	31	26	6	6	0	30	1	0	0	36	277
Sacramento	2	3	1	0	0	2	0	1	0	27	29
San Francisco	20	7	1	3	0	12	0	1	0	17	109

City reports for week ended April 25, 1931—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Worcester	0	0	0	0	0	0	0	1	0
Connecticut:									
Hartford	2	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo	0	1	0	0	0	0	0	0	0
New York	3	5	0	0	0	0	1	1	0
New Jersey:									
Newark	0	0	1	0	0	0	0	0	0
Trenton	0	0	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	6	5	0	0	0	0	0	0	0
Pittsburgh	3	1	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	1	1	0	1	0	0	0	0	0
Cleveland	1	1	0	0	0	0	0	0	0
Columbus	1	0	0	0	0	0	0	0	0
Indiana:									
Indianapolis	2	1	0	0	0	0	0	0	0
Illinois:									
Chicago	20	7	1	1	0	0	0	0	0
Springfield	1	0	0	0	0	0	0	0	0
Michigan:									
Detroit	5	4	2	1	0	0	0	0	0
Grand Rapids	1	1	0	0	0	0	0	1	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	2	0	0	0	0	0	0	0	0
Iowa:									
Waterloo	1	1	0	0	0	0	0	0	0
Missouri:									
Kansas City	1	1	0	0	0	0	0	0	0
St. Joseph	1	0	0	0	0	0	0	0	0
St. Louis	9	2	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	0	1	0	0	0	0	0
District of Columbia:									
Washington	1	3	0	0	0	0	0	0	0
North Carolina:									
Raleigh	0	0	0	0	1	0	0	0	0
South Carolina:									
Charleston	0	0	0	0	4	0	0	1	1
Columbia	3	2	0	0	0	0	0	0	0
Georgia:									
Atlanta	2	0	0	0	4	4	0	0	0
Savannah	0	0	0	0	4	1	0	0	0
Florida:									
Miami	0	0	0	0	1	0	1	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	1	1	0	0	1	0	0	0	0
Nashville	0	1	0	0	0	0	0	0	0
Alabama:									
Mobile	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	2	0	0	0
Louisiana:									
New Orleans	2	2	0	0	0	0	0	0	0
Shreveport	0	0	0	0	0	1	0	0	0
Oklahoma:									
Oklahoma City	4	0	0	1	0	0	0	0	0
Texas:									
Dallas [1]	1	1	0	0	1	2	0	0	0
Fort Worth [1]	1	0	0	0	0	0	0	0	0
Houston	0	0	0	0	0	2	0	0	0
San Antonio	2	1	0	0	0	0	0	0	0

[1] Typhus fever: 2 cases; 1 case at Dallas and 1 at Fort Worth, Tex.

City reports for week ended April 25, 1931—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases estimated expectancy	Cases	Deaths
MOUNTAIN									
Utah:									
Salt Lake City	1	2	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	1	0	0	0	0	0	0	0	0
California:									
Los Angeles	2	1	0	0	0	0	0	2	0
San Francisco	2	0	0	0	0	0	0	2	0

The following tables give the rates per 100,000 population for 98 cities for the 5-week period ended April 25, 1931, compared with those for a like period ended April 26, 1930. The population figures used in computing the rates are estimated mid-year populations for 1930 and 1931, respectively, derived from the 1930 census. The 98 cities reporting cases have an estimated aggregate population of more than 33,000,000. The 91 cities reporting deaths have more than 31,500,000 estimated population.

Summary of weekly reports from cities, March 22 to April 25, 1931—Annual rates per 100,000 population, compared with rates for the corresponding period of 1930 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Mar. 28, 1931	Mar. 29, 1930	Apr. 4, 1931	Apr. 5, 1930	Apr. 11, 1931	Apr. 12, 1930	Apr. 18, 1931	Apr. 19, 1930	Apr. 25, 1931	Apr. 26, 1930
98 cities	78	82	53	79	65	93	66	86	53	91
New England	70	56	46	68	84	82	79	119	58	85
Middle Atlantic	63	80	48	74	59	92	62	83	46	99
East North Central	82	114	64	107	86	115	83	96	58	113
West North Central	163	64	42	52	63	89	63	87	67	68
South Atlantic	61	70	47	64	49	80	65	64	51	64
East South Central	76	48	29	30	17	6	23	18	23	48
West South Central	64	125	85	139	54	153	74	206	71	101
Mountain	87	44	44	26	35	79	17	9	26	88
Pacific	69	34	53	51	57	51	43	36	63	49

MEASLES CASE RATES

98 cities	1,208	879	1,122	1,004	1,326	1,195	1,316	1,227	1,342	1,356
New England	1,479	1,117	1,106	1,449	1,503	1,562	1,349	1,628	1,286	1,710
Middle Atlantic	1,321	611	1,250	789	1,422	966	1,543	1,097	1,418	1,192
East North Central	723	654	727	799	831	904	790	1,074	1,075	999
West North Central	650	908	532	860	704	1,199	589	1,009	830	1,332
South Atlantic	3,879	697	3,808	867	4,546	1,067	4,343	1,089	4,049	1,306
East South Central	1,635	968	1,501	526	1,751	329	1,612	299	1,600	407
West South Central	47	784	88	731	68	721	101	502	139	592
Mountain	1,140	2,987	661	4,731	844	7,674	923	6,793	661	8,802
Pacific	519	2,184	358	2,008	499	2,059	417	1,800	517	2,067

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1931 and 1930, respectively.

Summary of weekly reports from cities, March 22 to April 25, 1931—Annual rates per 100,000 population, compared with rates for the corresponding period of 1930—Continued

SCARLET FEVER CASE RATES

	Week ended—									
	Mar. 28, 1931	Mar. 29, 1930	Apr. 4, 1931	Apr. 5, 1930	Apr. 11, 1931	Apr. 12, 1930	Apr. 18, 1931	Apr. 19, 1930	Apr. 25, 1931	Apr. 26, 1930
98 cities	402	308	371	301	362	320	382	298	405	262
New England	697	363	577	462	474	351	584	402	575	348
Middle Atlantic	454	299	404	293	413	281	415	262	488	239
East North Central	378	383	378	377	338	430	383	391	432	360
West North Central	580	306	585	271	537	399	518	366	469	248
South Atlantic	310	272	290	276	355	308	306	302	304	248
East South Central	559	233	396	143	465	132	582	143	396	126
West South Central	78	111	95	157	105	108	112	115	98	59
Mountain	209	458	157	238	174	335	278	352	191	229
Pacific	104	204	92	168	104	217	116	144	86	176

SMALLPOX CASE RATES

98 cities	17	22	14	28	19	29	22	27	21	30
New England	0	2	0	0	0	2	0	2	0	0
Middle Atlantic	0	0	0	0	1	0	2	0	1	0
East North Central	7	17	9	30	6	23	19	23	20	18
West North Central	99	99	78	87	96	149	92	139	71	145
South Atlantic	4	8	2	2	18	10	10	4	6	0
East South Central	12	18	12	0	0	12	52	18	35	42
West South Central	78	45	71	17	81	28	95	70	98	38
Mountain	44	26	0	106	17	62	9	26	17	97
Pacific	22	71	16	71	53	89	27	71	41	109

TYPHOID FEVER CASE RATES

98 cities	4	3	4	4	5	5	5	6	3	6
New England	2	2	2	5	2	0	2	7	2	5
Middle Atlantic	2	15	3	3	5	1	4	2	4	5
East North Central	2	3	2	2	3	1	2	2	2	6
West North Central	2	4	4	2	0	4	4	8	4	4
South Atlantic	12	6	14	4	16	22	8	22	2	12
East South Central	0	30	0	30	6	18	12	6	6	0
West South Central	7	7	10	10	3	7	7	7	0	24
Mountain	0	0	9	18	0	44	9	18	9	0
Pacific	10	2	2	6	8	4	10	8	4	4

INFLUENZA DEATH RATES

91 cities	29	14	23	13	18	16	17	15	13	12
New England	14	10	2	7	19	7	7	7	7	12
Middle Atlantic	20	10	17	14	12	20	12	14	12	9
East North Central	25	11	18	10	14	8	10	12	6	14
West North Central	35	6	12	9	15	9	29	18	18	9
South Atlantic	32	16	39	8	30	26	32	22	10	12
East South Central	126	97	126	39	69	45	76	58	44	39
West South Central	55	32	69	36	45	25	45	25	55	25
Mountain	61	53	26	26	17	26	17	9	17	18
Pacific	41	2	14	0	19	12	10	2	5	0

PNEUMONIA DEATH RATES

91 cities	180	163	171	161	155	164	161	149	137	140
New England	156	220	127	181	173	186	144	160	132	189
Middle Atlantic	220	187	223	184	168	185	180	180	165	160
East North Central	125	117	120	146	118	127	128	114	98	108
West North Central	171	135	150	117	253	150	244	156	230	81
South Atlantic	263	212	221	196	199	230	188	202	168	210
East South Central	189	227	170	155	176	201	290	207	126	227
West South Central	211	164	238	164	169	181	173	121	145	132
Mountain	131	176	157	185	191	185	113	167	104	150
Pacific	98	92	53	62	60	72	67	37	46	50

FOREIGN AND INSULAR

AUSTRALIA

Vital statistics—Year, 1929.—During the year 1929, 129,480 births were recorded in Australia, giving a birth rate of 20.30 per 1,000 population. There were 60,857 deaths registered, a rate of 9.55 per 1,000 population.

CANADA

Provinces—Communicable diseases—Week ended April 25, 1931.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended April 25, 1931, as follows:

Province	Cerebro-spinal fever	Influenza	Polio-myelitis	Smallpox	Typhoid fever
Prince Edward Island [1]					
Nova Scotia	1				
New Brunswick					1
Quebec					34
Ontario		2		6	9
Manitoba	3				3
Saskatchewan				3	1
Alberta			1		
British Columbia			2		
Total	4	2	3	9	48

[1] No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended April 25, 1931.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended April 25, 1931, as follows:

Disease	Cases	Disease	Cases
Chicken pox	107	Paratyphoid fever	1
Diphtheria	15	Scarlet fever	69
Erysipelas	15	Tuberculosis	50
German measles	14	Typhoid fever	34
Measles	528	Whooping cough	21
Mumps	13		

COLOMBIA

Medellin—Meningitis.—According to a report dated May 5, 1931, there was an epidemic of cerebrospinal meningitis in Medellin, Colombia. Twenty cases had been reported. Antimeningococcus serum had been ordered.

CUBA

Provinces—Communicable diseases—Four weeks ended February 14, 1931.—During the four weeks ended February 14, 1931, cases of certain communicable diseases were reported in the Provinces of Cuba, as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer			1		1	1	3
Chicken pox		15	2	55		3	75
Diphtheria	1	18		6	1	3	29
Malaria	2	4		1	6	50	63
Measles		15		17			32
Paratyphoid fever			2		1	4	7
Scarlet fever		6		2			8
Typhoid fever	7	19	3	38	4	19	90

Habana—Communicable diseases—Four weeks ended April 25, 1931.—During the four weeks ended April 25, 1931, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox	44		Rabies		1
Diphtheria	8		Scarlet fever	7	
Malaria [1]	2		Tuberculosis	22	4
Measles	67		Typhoid fever [1]	14	1

[1] Many of these cases are from the Island of Cuba, outside of Habana.

JAMAICA

Communicable diseases—Four weeks ended April 25, 1931.—During the four weeks ended April 25, 1931, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the Island of Jamaica, outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis		6	Puerperal fever		6
Chicken pox	5	55	Scarlet fever	6	8
Dysentery	1	4	Tuberculosis	28	67
Leprosy		1	Typhoid fever	9	21

PANAMA CANAL ZONE

Communicable diseases—March, 1931.—During the month of March, 1931, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox	25	1	Meningococcus meningitis	3	1
Diphtheria	8	1	Pneumonia		22
Dysentery (amebic)	5		Poliomyelitis	1	
Leprosy	1	2	Scarlet fever	2	
Malaria	105	2	Tuberculosis		31
Measles	84		Whooping cough	9	

PORTO RICO

San Juan—Communicable diseases—Five weeks ended April 11, 1931.—During the five weeks ended April 11, 1931, cases of certain communicable diseases were reported in San Juan, P. R., as follows:

Disease	Cases	Disease	Cases
Diphtheria	5	Measles	2
Influenza	1	Tetanus	2
Malaria	22	Whooping cough	31

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Oct. 19–Nov. 15, 1930	Nov. 16–Dec. 13, 1930	Dec. 14, 1930–Jan. 10, 1931	Jan. 11–Feb. 7, 1931	Week ended—											
						February, 1931			March, 1931				April, 1931				May 2, 1931
						14	21	28	7	14	21	28	4	11	18	25	
Ceylon: Colombo	C									1							
China:																	
Canton	C	1												1			
Shanghai	C	2															
India	C	18,944	11,112	10,687	15,334	3,529	2,549										
	D	9,782	5,933	5,689	8,123	1,846	1,325										
Bassein	C															2	
	D															2	
Bombay	C	19	13		21									2			
	D	17	7		9									1			
Calcutta	C	33	22	28	121	27	33	45	65	80	102	129	125	95			
	D	16	16	20	86	22	25	26	39	49	68	69	70	55			
Karikal	C			1		4		1	4	2	1	7	2				
	D					4			4	2	1	7	2				
Madras	C	1		201	99	18	20	19	15	4	5	7	4				
	D			67	47	5	4	14	6	5	3	2					
Negapatam	D				3	1		2									
Rangoon	C			1													
	D			1	1												
Tuticorin	C	1	5	1	1		1										
	D	1															
India (French):																	
Chandernagor	C	1	1	2	1		1	2	2	2	2	2					
	D			3	1		1	3	1	2	3	1					
Pondicherry	C	1	4	31	19	10	20	31	39	29	25	26	20	5	3		
	D		4	21	11	10	9	6	9	6	5	4	3	1			
India (Portuguese)	C	14		1													
	D	9															
Indo-China (see also table below):																	
Pnompenh	C	1	2		4		3	3	3					1	1		
	D		2		2		1	2	2		1						
Saigon and Cholon	C	1	3	9	6			3	1	1		1	3	2	3		
	D		1	4	3			3	1	2	1	1	1		3		

Place		Sep-tember, 1930	Octo-ber, 1930	No-vember, 1930	December, 1930			January, 1931			February, 1931			March, 1931		
					1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-28	1-10	11-20	21-31
Philippine Islands:[1]																
Iloilo	C			1	2											
	D			3	2											
Provinces—																
Capiz	C				59	69	54	28	35	29	11	4	4		3	8	18
	D				47	55	39	23	29	24	10	4	3		3	8	13
Iloilo	C	30	45	28	145	27	42	10	16	2	5						
	D	23	27	22	110	21	22	11	11	2	2						
Masbate	C									21							
	D									9							
Negros, Occidental	C	56	163	120	90	1	1	2									
	D	41	123	97	56	1	1	2									
Negros, Oriental	C				1												
	D				1												
Samar	C	16	8	17													
	D	12	8	9													
Sorsogon	C	5															
	D	4															
Siam	C	4	6	2	3		1				4	4	2				
	D	4	6	2	1						1	1					
Ayudhaya District	C												1				
Bangkok	C	3	4	2	3	1			1		1	1		1			
	D	2	4	2	1				1		1	1					
Bismulok Province	C										4	4					
	D										1	1					
Indo-China (French) (see also table above):																	
Cambodia[1]	C	38	22	26	28			7	19	36		35					65
Cochin-China[1]	C	33	28	13	8			7	4	13		5					33

[1] Figures for cholera in the Philippine Islands are subject to correction.
[2] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE

[C indicates cases; D, deaths; P, present]

Place		Oct. 19–Nov. 15, 1930	Nov. 16–Dec. 13, 1930	Dec. 14, 1930–Jan. 10, 1931	Jan. 11–Feb. 7, 1931	Week ended— February, 1931 14	21	28	March, 1931 7	14	21	28	April, 1931 4	11	18	25	May 2, 1931
Algeria:																	
Algiers	C	11	2	1	2	1							1				
	D	3											1				
Bone	C				1												
Constantine, vicinity of	C	1		50	1	1											
	D				1												
Oran	C	2															
	D	1															
Plague-infected rats		1															
Philippeville	C	2		1													
	D			1													
Argentina:																	
Cordoba Province	C				1		2										
Entre Rios Province—Diamante	C							2									
Jujuy Province—Palpala	C				1		1										
Santa Fe	C						2										
Belgian Congo	C	1	1									2					
	D	1	1									2					
British East Africa (see also table below):																	
Tanganyika	C		3	2				15	7								
	D		3	2				4									
Uganda	C	171	111	67	25	6	4		5	4							
	D	168	112	67	24	6	4		5	4							
Ceylon: Colombo	C	1	9	9	8	6	2	1	2	1	3	3	1	1			
	D	1	8	9	6	7	2	1	3	1	3	2	1	1			
Plague-infected rats		1	2		2	1	1	1			3	1			1		
China: Shensi	C	1															
Dutch East Indies:																	
Batavia and West Java	C	143	208	239	180	29	36	46	30	18	31						
	D	146	206	238	168	29	35	46	28	17	28						
East Java and Madura	C				4			1		1							
	D				4			1		1							
Java and Madura	D	501	557	615	427	89	108	99	80	65	81	68	63				

Egypt:																	
Alexandria	C	7	4	3	1	1			1	1							
	D	7	1														
Plague-infected rats			3	1	1		1										
Assiout	C	3	9	7	26	9		17	15	6	10	1	1	5	16	8	3
	D	1	1	1	6	4		3	4		4	1	1		11	4	2
Aswan	C		3														
Beni-Suef	C				1											10	2
	D				1											3	
Cairo	C												1				
Deirout	C				21	6	10										3
	D				4		4										1
Gharbieh	C				1												
	D				1												
Girga	C			7	1						14	37	35	31	9	4	
	D			2	1						2	5	17	13	3	5	1
Kena	C											5				3	
	D											2				1	
Manfalut	C			23	30	11		2	2	3	5	9					
	D			5	6	4		1			2	1					
Minieh	C		1		2						2	1			1		
	D				1						1	1					
Port Said	C	2															
France: Marseille	C	4															
Greece (see table below).																	
India	C	2,721	3,259	3,740	5,335	1,270	1,095										
	D	1,497	1,856	2,226	3,422	862	774										
Bassein	C	1		2	4				1								
	D			1	3	1											
Bombay	C	1			1	1				1	1	1	1	4			
	D	1			1	1					2	1		4			
Plague-infected rats		30	32	38	34	14		8	10	17	14	21	18	34			
Calcutta	C													1			
	D													1			
Madras Presidency	C	185	148	220	312	30	19	13	12	9							
	D	124	78	154	182	17	18	7	4	4							
Rangoon	C	2		2	2							1		1			
	D	1		1	1							1		1			
Plague-infected rats		1	4	2	4		8						1	1			
India (Portuguese)	C	3															
	D	3															
Indo-China (see also table below): Pnompenh	C		6	1	7				1								
	D	1	6	1	7		1	2	1	2	1	1	2	2			
Iraq: Baghdad	C	P	4		5			1	2	1	3	3	1		5	10	
	D		2		4				2		3	1	1		2	5	
Madagascar (see also table below): Tamatave	C	5	4	2	9												
	D	3	3														
Morocco	C	5		19	13												
	D			8	4												
Nigeria: Lagos	C	38	9	5	1									2			
	D	5	9	5	1									2			
Plague-infected rats		13	5	5													

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		Oct. 19–Nov. 15, 1930	Nov. 16–Dec. 13, 1930	Dec. 14, 1930–Jan. 10, 1931	Jan. 11–Feb. 7, 1931	Week ended— February, 1931			March, 1931				April, 1931				May 2, 1931
						14	21	28	7	14	21	28	4	11	18	25	
Peru (see table below).																	
Senegal (see table below).																	
Siam	C	6			4	5	9	3	1	2	2						
	D	5			2	4	6	4		1	1						
Bangkok	C	1	1	3	8	1	2	3		29							
	D	1	1	3	8		1	4		6							
Nagara Rajsima	C	1	11	17	9	7						1					
	D	1	9	10	10	6											
Syria: Beirut	C	6		1	1		1										
Tripolitania	C	1	13		8		1			1							
	D		1		3												
Tunisia: Tunis	C	1	P	13	1		9	2	3		5		5	5			
	D						7						4	4			
Union of Socialist Soviet Republics:																	
Gouranduz	D				28												
Transcaucasia—Karabakh	C				6												
Union of South Africa:																	
Cape Province	C	1	P														
Orange Free State	C			2	P	P	1	P		2							
	D			2			1										
On vessel: S. S. Marionga de Thermiotis at Avonmouth	C			1													

Place		Aug., 1930	Sept., 1930	Oct., 1930	Nov., 1930	Dec., 1930	Jan., 1931
British East Africa (see also table above):							
Kenya	C	87	53	58	62	50	69
Greece	C	------	------	2	------	------	------
Indo-China (see also table above)	C	2	5	2	5	1	------
Madagascar (see also table above):							
Ambositra Province	C	------	------	4	44	95	100
	D	------	------	4	44	87	96
Antisirabe Province	C	11	21	3	18	27	66
	D	11	21	3	18	26	57
Miarinarivo Province	C	2	7	18	12	18	28
	D	2	7	18	12	18	26
Moramanga Province	C	27	18	20	19	13	7
	D	27	17	20	19	11	5
Tananarive Province	C	39	79	125	170	178	92
	D	38	79	116	164	172	89
Peru	C	21	10	42	34	8	------
	D	8	2	20	14	------	------
Senegal:							
Baol [1]	C	79	48	53	------	------	------
	D	20	23	35	4	------	------
Dakar [1]	C	108	3	------	------	------	------
	D	90	8	------	------	------	------
Louga [1]	C	75	61	37	10	------	------
	D	33	30	25	3	------	------
Thies [1]	C	34	12	24	27	2	------
	D	20	4	15	23	1	------
Tivaouane [1]	C	110	20	53	31	2	------
	D	54	14	31	25	1	------

SMALLPOX

Place		Oct. 19–Nov. 15, 1930	Nov. 16–Dec. 13, 1930	Dec. 14, 1930–Jan. 10, 1931	Week ended— January, 1931			February, 1931				March, 1931				April, 1931			
					17	24	31	7	14	21	28	7	14	21	28	4	11	18	25
Algeria:																			
Algiers	C	------	------	1	------	------	------	1	------	1	------	------	------	------	2	------	------	2	------
Bone	C	------	------	------	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------
Constantine	C	1	------	------	------	------	------	------	------	------	------	------	------	1	------	------	------	------	------
Oran	C	------	3	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Arabia: Aden	C	------	------	------	------	------	------	1	1	------	------	------	------	------	------	------	------	------	------
Belgian Congo	C	------	------	79	27	23	------	------	------	------	------	------	------	------	------	------	------	------	------
Belgium	C	------	------	------	------	------	------	------	1	------	------	------	------	------	------	------	------	------	------
Brazil:																			
Porto Alegre (alastrim)	C	28	36	------	------	3	------	------	1	1	2	3	7	------	------	------	------	------	------
Rio de Janeiro	C	2	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
British East Africa (see also table below): Tanganyika	C	17	385	84	21	25	18	6	35	42	13	1	6	------	------	------	------	------	------
	D	1	36	4	1	1	2	1	------	12	1	------	1	------	------	------	------	------	------

[1] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Oct. 19–Nov. 15, 1930	Nov. 16–Dec. 13, 1930	Dec. 14, 1930–Jan. 10, 1931	Week ended— January, 1931			February, 1931				March, 1931				April, 1931			
					17	24	31	7	14	21	28	7	14	21	28	4	11	18	25
British South Africa: Southern Rhodesia	C	95	18	18	2	1													
	D		3																
Canada:																			
Alberta	C		1	19		7			1										
British Columbia	C	3	1	3				2	1	2	5								
Manitoba	C						1				1								
Winnipeg	C			1							1								
Nova Scotia	C						1								1				
Ontario	C	59	23	17	10	3	32	4	10	4	7	8	2	3	3	1	4		6
Kingston	C			6	1					1									
North Bay	C			2					1										
Ottawa	C	37	12	2	1	1	1			1									
Sault Ste. Marie	C			1	11	8	5	6			2						3	1	
Toronto	C		4										1		1			4	
Quebec	C		2			2													
Saskatchewan	C	2	18		7	6	5	20	17	18	18	10	40	10	8		5	16	3
Regina	C									1					2				2
Canary Islands: Las Palmas	C														1				
China:																			
Canton	C								2			1	1	2	2	2	1		
Chungking	C	P	P	2															
Foochow	C	P	P	P		P		P		P		P		P					
Hong Kong	C			1		1			2	5		2			1	1		1	
	D								1	1	1				2				
Manchuria—																			
Harbin	C	1					1				4		1						
Kwantung—Dairen	C		4	1											2				1
	D		1																
Nanking	C	P	P	P	P		P	P	P	P	P	P		P	P				
Shanghai—																			
Foreigners only	C	2	8	14	1	1	6	4	4	7	2	3	3	1	1	1	2		7
Including natives	D	1	4	11	2	4	4	3	5	2	4	3	5	2	2	1	2		
Swatow	D	3	3	5	1	1	3	2		3	3	7	3	6	9	8	2		
Tientsin	C	1	2		1														
Chosen (see table below).																			

Colombia: Cali	D		1																
Dutch East Indies:																			
Java—Batavia and West Java	C	26	6	4		28		1		2			1						
	D	4	2	2		1		1	1										
Sanggi Islands	C	29																	
	D	3																	
France (see table below).																			
Great Britain:																			
England and Wales	C	372	508	665	187	272	286	213	221	50	247	227	171	219	226	179	177	163	
Bradford	C	1	1	1		1		3		1				1		1	1		
Leeds	C	2		2												1		1	
London	C	172	184	161	45	47	33	24	23	16	23	36	26	54	32	35	51	39	
London and Great Towns	C	296	433	560	154	198	194	147	150	186	189	158	117	154	166	117	142	126	
	D	1	1							1									
Sheffield	C					1	1	1		16	6	10	2	1	6	1	4	2	
Stoke-on-Trent	C	1				1						1							
Greece (see table below).																			
Honduras:																			
Amapala	C											1							
Ocotopeque and Gracias districts	C											P							
Puerto Castilla	C																		
Tegucigalpa	C			4	7	1		3	3										
Tela	C																		1
India	C	2,412	3,627	5,623	2,068	2,396	2,477	2,682	2,996	2,766							1		
	D	606	874	1,381	497	486	523	739	665	620									
Bombay	C		1	2	2	2	2	1		1	3	2	4	1	4	1	2		
	D		1	2			1			1	1	1		1	2	1	1		
Calcutta	C	9	18	59	28	28	40	47	35	51	83	82	53	69	75	86	101		
	D	7	11	40	16	22	29	33	26	41	66	55	36	54	50	63	78		
Cochin	C	25	22	15	5	6	8	10	19		16	24	15	17	14		10		
	D	3	4	1					1		1	1							
Karachi	C		3				2	1			4			3					
	D		1				1	1											
Madras	C	9	20	4	4	7	3	2	4	1	3	1	6	3	9	4	12		
	D	2	3							1				2	1		2		
Moulmein	C					2													
Negapatam	C	9	6														1		
Rangoon	C	1	1						2		1	1	1	1	1		2		
	D	1											1						
Vizagapatam	C							1			3		1		1		2		
	D										2				1		1		
India (French):																			
Chandernagor	C	3		5	3	2	1	3	2		6	6	3	3	6	2			
	D	1		3	1						1					2			
Karikal	C			3	1	2		2	2		16	1			3				
	D			2		2		2	2		16								
Pondicherry Province	C	11	19	34	16	8	13	8	1	1	10	7	7		4	3	3		
	D	11	17	32	16	8	13	8	1	1	10	7	7		4	3	3	3	
India (Portuguese)	C			4	1	4			2	3	6	3							
	D								2		1								

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Oct. 19–Nov. 15, 1930	Nov. 16–Dec. 13, 1930	Dec. 14, 1930–Jan. 10, 1931	Week ended— January, 1931			February, 1931				March, 1931				April, 1931			
					17	24	31	7	14	21	28	7	14	21	28	4	11	18	25
Indo-China (see also table below):																			
Pnompenh	C		1	2				1					1						
	D		1					1											
Saigon and Cholon	C	2	2		3	1		2		2	2		4	1	1		1		
	D	2	2		2			2			1		3	1	2	2	1		
Iraq:																			
Baghdad	C										3	6							
Mosul Liwa	C	6	16	1		2		1		5									
	D		2							1									
Ivory Coast (see table below).																			
Japan:																			
Kobe	C										1	1							
Taiwan	C							1											
Mexico (see also table below):																			
Jalisco (State)—Guadalajara	D	3	3			1									1				
Juarez	D	1																	
Mexico City and surrounding territory	C	9	6	10					7	5		11	13	13	7		17		
	D	2	6	6				1	1	3	2	2	5	5	6	8	4		
Vera Cruz	C	1							1		1	1		1	1			1	
Morocco (see table below).																			
Nicaragua: Porto Cabezas	C			2															
Nigeria: Lagos	C														2				
Panama Canal Zone	C						2												
Poland	C	8	3	25						1									
Portugal: Lisbon	C	20	37	72	27	31	15	30		12	19	9	16	15	17	4	8	18	
Siam	C			1	1	1	1	1	1	1									
Somaliland, British: Boales	C	1	1																
	D			1															
Spain	C	P	P	P			P	P	P	P	P	P	P	P	P				
Straits Settlements	C	10	17	6	3	1	2	1			2				2	1	1		
	D	2	7	3			1				1				1		1		
Sudan (Anglo-Egyptian)	C	5	50	64	1	7		3	1	1	44	51	3	1	4				
	D	1	5	6		7					6	4		1	1				
Sudan (French) (see table below).																			
Syria (see table below).																			

Place		July, 1930	Aug., 1930	Sept., 1930	Oct., 1930	Nov., 1930	Dec., 1930
Tunisia: Tunis	C			17	6	1	1
Turkey (see table below).							
Union of South Africa:							
Cape Province	C	P	P	P			
Orange Free State	C	2	P				
Transvaal	C	P	P	P	P	P	P
Upper Volta	C		6	4			
	D			2			
On vessel:							
S. S. Clan Mactoggart at Suez	C						
S. S. Muncaster Castle at Manila from Hong Kong	C			1			
S. S. Matheran at Suez from Calcutta	C					1	
S. S. Clan Buchanan at Suez	C						
S. S. Rotterdam at Naples from Venice	C						
S. S. Clan McTavish at Manila from Chittagong	C						
S. S. Benvenne at Sydney from Shanghai	C				1		

Place		July, 1930	Aug., 1930	Sept., 1930	Oct., 1930	Nov., 1930	Dec., 1930
British East Africa (see also table above):							
Kenya	C	186		424		653	
Chosen	C	65	35	3	22		
	D	21	15	5	6		
France	C	1					
Greece	C	1		6			4
Mexico (see also table above)	D	659	718	822	893		1
Morocco	C	3	8	4	4	20	25
Turkey	C	51	21	19	74	65	116
	D	13	4	2	1	1	9

Place		September, 1930	October, 1930	November, 1930	December, 1930			January, 1931			February, 1931			March, 1931		
					1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-28	1-10	11-20	21-31
Indo-China (see also table above)	C	192	258	86	38	9	14		48	46		46				139
Ivory Coast	C		4	2	9											
Sudan (French)	C	P	17		43		96							4		P
	D		2		16		4									
Syria: Beirut	C								1							

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Oct. 19–Nov. 15, 1930	Nov. 16–Dec. 13, 1930	Dec. 14, 1930–Jan. 10, 1931	Week ended— January, 1931			February, 1931				March, 1931				April, 1931		
					17	24	31	7	14	21	28	7	14	21	28	4	11	18
Algeria:																		
Algiers	C	1	2						1	1					3			
Constantine Department	C	1	2	6		6	6	19			4			1		2	2	
Oran	C		5			1	2					1						
Australia; western	C															1		
Bulgaria	C	3	11	3	9	2	1	1		2		3				9		
	D			1												2		
Chile: Valparaiso	D													1				
China:																		
Canton	C					2							1					
Manchuria—Harbin (see also table below)	C		1			3					5							
Shanghai	C					2												
Tientsin	C		1															
Chosen (seen table below).																		
Czechoslovakia (see table below).																		
Egypt:																		
Alexandria	C	2	2															1
	D	2																
Beheira Province	C			1													3	
	D			1													2	
Cairo	C		1	1				1										
Port Said	C	2				1												
Eritrea: Asmara	C																	
Great Britain: Scotland	C							1										
Glasgow	C						2											
	D						1											
Greece (see table below).																		
Guatemala.[1]																		
Iraq: Baghdad	C								2	1	1	1	1					
	D								1									
Irish Free State: Mayo County, Belmullet	C																	1
Latvia (see table below).																		
Lithuania (see table below).																		

Mexico (see also table below):																		
Durango	D						1										1	
Mexico City, including municipalities in Federal District	C	11	14	12	13	12	6	8	13	13	9		46	66	73	31	67	
	D	4	7	10	8	9	9	8	4	7	5		20	13	31	20	18	
San Luis Potosi	D		2						2	2		1	1	1	2	1	1	2
Morocco	C	3	1	8			6	2	7	8	5	8	2	2	3			
	D					2				1								
Palestine	C	3	7	4	1	1			3				2	1	1	1	1	
Paraguay: Asuncion	D					2	2											
Poland	C	37	42	63	19	21	16	50	49	41	43	56	62	58	85	82	93	176
	D		7	3	2	1	4	1	3	3	4	9	4		7	4	8	7
Portugal: Oporto	C	4	6			1												
Rumania	C	41	34	113	54	43	51	45	49	53	12	38	55					
	D	2	3	5	1	7	6	2	5	11	3	5	4					
Spain	C	4	1															
	D		1															
Tunisia:																		
Sbeitla, vicinity of	C															20		
	D															7		
Sfax	C														2			
Tunis	C		28			7	4	5			6	12	5	2	7		2	
Turkey (see table below).																		
Union of South Africa:																		
Cape Province	C	P	P	P	P	P	P	P	P	P	P	P	1					
Municipality of East London	C	1	1	3		1	1	1										
Natal	C	P		P	P	P	P	P	P	P				1				
Orange Free State	C	P		P	P	P	P	P	P		P	P	P					
Transvaal	C	P	P	P	P	P	P	P	P	P	P	P	P					
Yugoslavia (see table below).																		

Place		Sept., 1930	Oct., 1930	Nov., 1930	Dec., 1930	Jan., 1931	Feb., 1931
China: Harbin (see also table above)	C		3				
Chosen: Seoul	C	1	7	1	1	1	
Czechoslovakia	C			16	24	60	
Greece	C	4	4	4	10	10	17
Latvia	C	2					
Lithuania	C	24	1	5	6	26	3
	D	2		1	3	3	1
Mexico (see also table above)	D	47	47				
Turkey	C		28	3	2		18
Yugoslavia	C		2	2	1	20	
	D		1		1	2	

[1] On Feb. 27, 1931, the Director General of Public Health of Guatemala reports an unusual outbreak of typhus fever in a small village in Guatemala.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

	Cases	Deaths
Brazil:		
Bahia State—		
Mar. 14, 1931	1	----
Mar. 15–21, 1931	1	----
Ceara State—Mar. 14, 1931	2	----
Barbalha, Feb. 7, 1931	1	1
Minas Geraes State—		
Mar. 20, 1931	2	----
Apr. 5–11, 1931	1	----
Apr. 19–25, 1931	2	1
Rio de Janeiro State—		
Mar. 7, 1931	1	1
Mar. 14, 1931	1	1
Mar. 21, 1931	1	1
Brazil—Continued.		
Rio de Janeiro State—Continued.		
Cambucy—	3	3
Jan. 1–25, 1931	1	1
Feb. 1–7, 1931	1	----
Friburgo (imported), Jan. 25–30, 1931		
Padua—	1	1
Jan. 18–24, 1931	1	1
Feb. 1–7, 1931	1	----
Feb. 8–14, 1931		